

A STATISTICAL ANALYSIS OF THE EFFECT THAT EDUCATION FINANCE  
LITIGATION HAS ON PER-STUDENT REVENUES IN THE STATES

BY  
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To

My Wife and Children

Thanks for your patience and devotion to me during our time here at the University.  
I love you dearly.

And to My Parents

Your encouragement has provided me with the belief that I could do anything I set my mind  
to do.

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## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	iii
LIST OF TABLES .....	vii
LIST OF FIGURES .....	viii
ABSTRACT .....	ix
CHAPTERS	
1 INTRODUCTION .....	1
Statement of Purpose .....	8
Research Questions .....	10
Methodology .....	10
Objective .....	11
Significance of Study .....	11
Limitations of Study .....	12
Definition of Terms .....	13
Summary .....	14
Notes .....	15
2 REVIEW OF LITERATURE .....	21
Introduction .....	21
The Dilemma in Education Finance Reform .....	22
Education Finance Litigation .....	27
Early Steps Toward Equality .....	27
Early Education Finance Litigation .....	30
Modern Education Finance Litigation: Three Waves of Dissent .....	31
The first wave: 1971-1973 .....	32
The second wave: 1973-1989 .....	36
The third wave: 1989-Present .....	37
The future of finance reform: A fourth wave?.....	40
Background of Education Finance Study in the United States ..	42
Early Twentieth Century Education Finance Studies ..	42
Education Finance Research in the 1960s and Early 1970s Prior to Modern Finance Litigation .....	46
Modern Education Finance Research: 1970s to Present .....	50
Research Relating the Impact of Litigation to Funding.....	62
Notes .....	71
3 METHODOLOGY .....	87
Outcomes of Interest .....	89

Assumptions .....	89
Data .....	91
Procedure .....	93
Design .....	96
Did PSR Levels Rise in Constant Dollars During the Thirty-two Year Period of the Study? .....	96
Did States That Experienced Litigation Improve Their PSR in Relation to the National Average?.....	96
Did the Change in Growth Differ Significantly Between the Various Categories and Was That Change Related to Litigation? .....	98
Notes .....	105
4     RESULTS AND DISCUSSION .....	103
Increased Revenues .....	104
Improved Funding Opportunities .....	109
Change on a National Scale .....	111
States With State Supreme Court Litigation v. States With No State Supreme Court Litigation .....	114
States With Successful Litigation v. States With Unsuccessful Litigation .....	116
Change in Ranking and Relation to the National PSR by Category .....	117
Applying Meaning to the Analysis .....	119
Does Litigation Influence PSR Levels in a State? .....	121
Summary of Findings .....	124
Increased Revenues .....	125
Improved Funding Opportunities .....	125
Relation to Litigation .....	126
Conclusion .....	126
Notes .....	131
5     SUMMARY AND CONCLUSIONS .....	128
Increased Revenues .....	129
Improved Funding Opportunities .....	130
Relation to Litigation .....	130
Summary of Results .....	131
Increased Revenues .....	131
Improved Funding Opportunities .....	132
Relationship to Litigation .....	133
Conclusion .....	134
Increased Revenues .....	135
Improved Funding Opportunities .....	135
Relationship to Litigation .....	136
Implications and Suggestions for Future Research .....	137
Notes .....	145
BIBLIOGRAPHY.....	146
BIOGRAPHICAL SKETCH .....	166

## LIST OF TABLES

<u>Table</u>	<u>page</u>
1. Increase in Constant dollars by State and Category .....	97
2. Summary of Category PSR Averages .....	98
3. PSA and Rank for States by Category over Years of Interest .....	100
4. Standard Scores for States by Category Across Year .....	102
5. Descriptive Statistics for Category Data for Average PSR .....	109
6. Summary table for the relationship between litigation and PSR levels.....	110

## LIST OF FIGURES

<u>Figure</u>	<u>page</u>
1. Comparison of Constant with Actual Dollars Per Student .....	95
2. Section I and II Compared by Rank and Standard Scores .....	103



Abstract of Dissertation Presented to the Graduate School of the University of Florida in  
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By

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Chair: R. Craig Wood

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This dissertation was designed to determine whether education finance litigation had benefited per-student revenues (PSR) for the fifty states within the United States of America during the period of time from 1970 through 1996. Revenues from 1965 through 1996 for all fifty states were used in the analysis. The method was to determine whether a state had increased its per-student revenues at a greater level after experiencing litigation than a state that had not experienced litigation during the time period chosen for the study. Three questions provided the focus of the study:

1. Did PSR levels increase overall for the fifty states during the thirty-two year period of education finance litigation? The first question asked whether there had been an increase in PSR levels for constant dollars during the thirty-two years of the study. Had no growth been observable during those years, then any changes in PSR would be correlated with inflation and any analysis of differences would have been improbable.

2. If PSR increased overall, did states that experienced litigation improve their PSR in relation to the national average? The second question focused on the observable differences in PSR for each state in relation to the state's ranking compared to the national average and to the state's standard scores compared to the national average. The purpose was to determine whether states that had experienced litigation at the state supreme court

level had improved in ranking or standard scores in relation to those states that had not experienced litigation.

3. If growth in PSR levels occurred, did the change in growth differ significantly among the various categories and was that change related to litigation? The last question analyzed the PSR levels for the various states over the thirty-two years chosen for the study, utilizing a multiple regression model to determine the effect that litigation had on the growth of PSR levels for the states.

## CHAPTER I INTRODUCTION

The concept of equity in educational funding originated with the desegregation battles fought in the court system since the Nineteenth Century.<sup>1</sup> The early attempts toward equity in the cases of *Roberts v. City of Boston*<sup>2</sup> and *Cumming v. Board of Richmond County*<sup>3</sup> exemplified the struggle for equitable treatment that would become a fulcrum in the contemporary education finance litigation of today.<sup>4</sup> The movement toward African American equality in education found fruition in the case of *Brown v. Board of Education*.<sup>5</sup> *Brown* brought to light the importance of public education to the common good of society. The Court opined that:

Today, education is perhaps the most important function of state and local governments. Compulsory school attendance laws and the great expenditures for education both demonstrate our recognition of the importance of education to our democratic society. It is required in the performance of our most basic public responsibilities, even service in the armed forces. It is the very foundation of good citizenship. Today, it is a principal instrument in awakening the child to cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment. In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms.<sup>6</sup>

In *Brown*, the Supreme Court determined that separate facilities for the different races was unconstitutional, and was a denial of the equal protection of the law.<sup>7</sup> Hence, equality could only be achieved when all students have equal access to all educational programs and facilities. This overriding principle of equality established in *Brown*

created the impetus for later state cases utilizing the judicial system to create educational finance change.<sup>8</sup>

Although most of the finance litigation in the states concerned the methods utilized by the various state legislatures to regulate and control revenues and expenditures, there have been a growing list of cases that have gained the most publicity.<sup>9</sup> Virtually every state in the United States had experienced some type of litigation that questioned the constitutionality of that state's distribution formula that dealt with the equitable treatment of students regarding the distribution of resources.<sup>10</sup> Most importantly, these cases dealt directly with the constitutional protections of students, demonstrating a pendulum shift from viewing education as a privilege granted by the state toward arguing that education was a fundamental right guaranteed by the state's constitution.<sup>11</sup>

Many finance education reformers<sup>12</sup> view equity as the primary concern for education finance today. These reformers promote equity in financing American schools as an important social concern that works toward the equalization of all students regardless of race, or social class. Further, using the decision of the Supreme Court in *Brown* as the basis for an equity argument, some plaintiffs in early finance education cases began to advance a new theoretical construct, which argued that equity in the distribution of funds was a child's constitutional privilege.<sup>13</sup> Thus, the right to an education, according to the ideological construct of these early cases, was a federally protected right under the equal protection clause of the Fourteenth Amendment,<sup>14</sup> and therefore, this right could be redressed through the federal court system. However, the

federal courts did not prove to be the best foundation for building the theory of equity in education finance.

Early litigation was hampered by the federal courts' unwillingness to render legislative acts as invalid or unconstitutional.<sup>15</sup> Attempts to challenge the various states' taxing legality based upon the Equal Protection Clause of the Fourteenth Amendment were met with little success because many federal courts viewed the Equal Protection Clause as a standard that provides minimum guidelines for comparable state constitutions.<sup>16</sup> The Supreme Court had earlier addressed the concept of equal protection and felt that there was no need for equal treatment of unequals, provided that the method of classifying differences between groups rested on real and not imaginary distinctions.<sup>17</sup> Thus the federal courts' reluctance to invalidate legislative acts rested in the difficulty of delineating between the source of the taxes and the states' plans for distribution of the funds.<sup>18</sup> Unless the states' methods clearly disregarded the conditions or needs of the local districts or citizens, the courts generally would not declare the methods of taxation or disbursement unconstitutional.<sup>19</sup> Hence, the courts have traditionally left the disbursement of resources to the legislature and have withheld judicial review of any statutes in light of this opinion. However, with the development of new constitutional theories, claiming education as a fundamental right guarded by the constitution and based on Supreme Court cases,<sup>20</sup> finance litigation began at the federal level.

Attempts to ground the issue of equity financing into a federally protected right began in 1968 in *McInnis v. Shapiro*.<sup>21</sup> In *McInnis*, the plaintiffs claimed that the disparate treatment of districts within the Illinois system was a violation of the

Fourteenth Amendment. However, the court found that the Fourteenth Amendment did not apply to educational expenditures, concluding that [t]here is no Constitutional requirement that public school expenditures be made only on the basis of pupils educational needs without regard to the financial strength of local school districts. Nor does the Constitution establish the rigid guideline of equal dollar expenditures for each student.<sup>22</sup> The 1969 case of *Burrus v. Wilkerson*<sup>23</sup> produced the same result as *McInnis*. The federal courts were reluctant to involve the federal government in controlling distribution of resources that were clearly state prerogatives.

The catalyst toward equity reform, using judicial interpretation to acquire constitutional protection, was provided in *Serrano v. Priest*<sup>24</sup> (*Serrano I*), decided by the California Supreme Court. In *Serrano I*, the court agreed that education was a protected right under both the California Constitution and the Fourteenth Amendment of the United States Constitution.<sup>25</sup> Since education was a protected right, equity in educational funding must be guaranteed. *Serrano I* declared that not only was education a fundamental right under the California and federal constitutions,<sup>26</sup> but also that property wealth was a suspect classification.<sup>27</sup> *Serrano I* provided the stimulus that education finance reformers needed because the decision transformed education in California into a constitutional right, which is guaranteed the same protections as the right of speech, press, and religious practice.<sup>28</sup> Not only did *Serrano I* establish that education was a fundamental right under the California Constitution, which guaranteed it equal protection under state law, but it also established the precedent for early litigation cases of using the United States Constitution's equal protection guarantee found in the Fourteenth

Amendment,<sup>29</sup> confirming the theory that education was a fundamental right of each citizen; hence, the Constitution provided for the protection of its citizens in guaranteeing that all citizens would have an equal educational experience.

However, the attempts to effectuate change by using the federal constitution was defeated in the decision of *San Antonio School District v. Rodriguez*,<sup>30</sup> ending any hope of employing the federal equal protection clause for inducing change in state distributional formulas for education.<sup>31</sup> Earlier, the lower federal court in *Rodriguez v. San Antonio Independent School District*<sup>32</sup> had acknowledged that the Texas system of financing public schools was a violation of students rights under the Fourteenth Amendment of the federal constitution.<sup>33</sup> What the lower court found was that the Texas system inaccurately assumed that the wealth of the various school districts would be evenly distributed throughout the state.<sup>34</sup> The resulting inequality of funds was, therefore, not corrected by state resources effectively sustaining a wide disparity of funding among the districts. What the lower court's decision opined was a standard of fiscal neutrality,<sup>35</sup> meaning that the quality of an education cannot be determined by the wealth of the school district where a child lives but must be determined by the wealth of the state as a whole.<sup>36</sup>

The initial movement to use the federal protections of the Constitution failed to gain support in the Supreme Court. In effect, the Supreme Court's decision in *San Antonio Independent School District v. Rodriguez*.<sup>37</sup> ended early litigation efforts of using the Equal Protection Clause of the Fourteenth Amendment.<sup>38</sup> The Supreme Court opined that the Fourteenth Amendment did not apply to educational expenses as the appellees had assumed; thus, the Court opined that education was not a fundamental right and could not

rely on judicial inquiry for protection.<sup>39</sup> Justice Powell, writing for the majority of the court, stated that

Education, of course, is not among the rights afforded explicit protection under our federal constitution. Nor do we find any basis for saying it is implicitly so protected. As we have said, the undisputed importance of education will not alone cause this Court to depart from the usual standard for reviewing a State's social and economic legislation.<sup>40</sup>

The Court also declared that the court system was not a sufficient arbiter for determining the quality of a state's educational funding program because of the difficult nature of funding such a multifaceted program as education.<sup>41</sup> Justice Powell stated that

In addition to matters of fiscal policy, this case also involves the most persistent and difficult questions of education policy, another area in which this Court's lack of specialized knowledge and experience counsels against premature interference with the informed judgments made at the state and local levels. Education, perhaps even more than welfare assistance, presents a myriad of intractable economic, social and even philosophical problems. *Dandridge v. Williams*, 397 U.S., at 487, 90 S.Ct. at 1163. The very complexity of the problems of financing and managing a statewide public school system suggest that there will be more than one constitutionally permissible method of solving them, and that within the limits of rationality, the legislature's efforts to tackle the problems should be entitled to respect. *Jefferson v. Hackney*, 406 U.S., at 546-547, 92 S.Ct., at 1731.<sup>42</sup>

The *Rodriguez* decision effectively removed the Fourteenth Amendment as a means to garner judicial review within the federal court system.<sup>43</sup> Thus, reform efforts changed focus from the federal to state courts, specifically focusing efforts on the equal protection, uniformity, equality, and thorough and efficient provisions of state constitutions.<sup>44</sup> After the decision of *Rodriguez*, the California Supreme Court reheard the *Serrano I* case and ruled in favor of the plaintiffs, declaring the California state funding system unconstitutional based solely on the California Constitution.<sup>45</sup>



In the California case of *Serrano I*<sup>46</sup> the plaintiffs argued for the invalidation of the state education funding system based on both the equal protection clause of the Fourteenth Amendment to the United States Constitution, but also the equal protection clause of the California Constitution.<sup>47</sup> After the Supreme Court's ruling in *Rodriguez*, the California Supreme Court reheard *Serrano I* without the Fourteenth Amendment argument. It still found in favor of the plaintiffs and opined that the California state system of financing education was unconstitutional based on the equal protection clause of the California Constitution.<sup>48</sup> Holding that the state constitutional guarantees were equivalent, yet could be interpreted more strictly to the Fourteenth Amendment, the court opined in *Serrano II* that our state equal protection provisions, while substantially the equivalent of the guarantees contained in the Fourteenth Amendment to the United States Constitution, are possessed of an independent vitality which, in a given case, may demand an analysis different from that which would obtain if only the federal standard were applicable.<sup>49</sup> The court further opined that the California Constitution could provide additional protections when they stated that decisions of the United States Supreme Court defining fundamental rights are persuasive authority to be afforded respectful consideration, but are to be followed by California courts only when they provide no less individual protection than is guaranteed by California law.<sup>50</sup>

Subsequent litigation after *Serrano II*, in various other states, had focused on the constitution of each state, primarily the equal protection clauses of those states as the fulcrum of the argument,<sup>51</sup> and other cases after 1989 began to include adequacy as part of the plaintiffs' argument.<sup>52</sup> Though plaintiffs had lost in some cases,<sup>53</sup> the number of cases

challenging various state constitutions had continued.<sup>54</sup> Thus, education finance litigation will undoubtedly continue into the Twenty-First Century.

The interest in litigation as a instrument for reform had gained much support over the last two decades, attested by the increased activity in the court system, yet little research had been conducted demonstrating the effectiveness of litigation on raising educational resources or spending. In 1992, Hickrod, Hines, Anthony, Dively, and Pruyne published a paper demonstrating the relationship between finance litigation and per-student spending in the fifty states.<sup>55</sup> The authors compared the per-student spending of states where litigation had occurred to states that had little or no litigation. Their conclusion was that litigation had a tremendous impact on per-student spending in the states whether the plaintiffs had won the case or the state had won the case. Their conclusion was that litigation had stimulated spending within the states where litigation had occurred regardless of who won the case. Although Hickrod et al. provided research into the relationship between litigation and per-student spending, there is very little evidence in the literature that substantiates that relationship,<sup>56</sup> and many questions still arise as to the effect that litigation had on per-student spending.

### **Statement of Purpose**

This study analyzed the relationship between education finance litigation and per-student spending within the states to determine if litigation had an impact in increasing per-student spending within the various states. Spending in this study was defined as the per-student revenue (PSR)<sup>57</sup> for each state. This study analyzed the PSR for each state prior to litigation and after litigation, covering the years 1965 through 1996.

The time period for this study was chosen because complete enrollment and revenue data were only available for these years. The analysis focused on the differences between the PSR for each student for the various states before and after litigation had occurred in the state. One purpose of the study centered on whether there had been an increase in PSR levels over the thirty-year period of the study. If no increases occurred, then the impact of litigation on revenues would be moot. A second purpose was to determine if states that had litigation had increased spending levels in relation to the national average. If states that experienced litigation had increased their PSR levels in relation to the national average, then an argument could be made that the increase was related to litigation. Another interest of the study was to determine if states that had litigation had significantly increased spending levels compared to states that had no litigation. The study incorporated the classification topology of the fifty states developed by Hickrod et al. to observe the relationship of spending levels between the various categories of states.<sup>58</sup>

The study was concerned with relating observable increases in resource levels to litigation within the states; therefore, the focus of the study was a comparative one (i.e., comparisons were made between the growth in revenues in states where litigation had occurred and the growth in revenues in states where litigation had not occurred at the states supreme court level.). Hickrod et al. hypothesized that education finance litigation would increase the revenues (per-student spending levels) within a state whether or not plaintiffs won at the state supreme court level.<sup>59</sup> This study tested that hypothesis using a quantitative analysis of the data.

## Research Questions

The study will address the following Research Questions:

Did PSR increase overall for the fifty states during the thirty-year period of education finance litigation?

If PSR increased overall, did states that experienced litigation experience improved PSR levels in relation to the national average?

If growth in PSR levels occurred, did the change in growth differ significantly between the various categories and was that change related to litigation?

## Methodology

This study attempted to utilize current evaluative methodology to analyze the changes in spending between states that have had litigation and those that had not. Fifty states had been analyzed to resemble closely the research done by Hickrod et al., and to provide as broad a spectrum of comparison as possible. Using longitudinal data helped to illustrate any trend in these data. The findings of the study illustrated what impact litigation had on spending levels in the fifty states.

Data chosen for this study were obtained from the annual Digest of Education Statistics and the State Comparisons of Educational Statistics published by the National Center for Education Statistics (NCES).<sup>60</sup> The years chosen for the study will be 1965 through 1996 because complete enrollment and resources data were available for these years during the time of the study.

Data were compiled in tabular form and an analysis, comparing the growth in funding, was conducted using the standard methodological practices currently found in

education finance literature. The states were analyzed in respective categories according to the litigation patterns. The equity analysis was completed to relate the growth in spending in historically lower-spending states to growth in spending in higher-spending states. The purpose was to analyze whether increased spending patterns were leading lower-spending states to spend at a higher level compared to higher-spending states. Also, a regression analysis was applied to these data to compare the various categories spending patterns to illustrate any effect that litigation had on the spending in those states.

### **Significance of Study**

Many studies dealing with equity focused on cross-sectional analysis instead of a longitudinal analysis.<sup>61</sup> This study was intended to contribute to an understanding of the longitudinal effects of litigation. The study provided knowledge regarding the impact litigation had on the per-student revenues within the states. Public education is a huge enterprise with expenditures exceeding \$200 billion nationwide.<sup>62</sup> The disparity of resources provided to school districts within various states nationwide is not in debate. In fact, many court cases have demonstrated the disparity well enough that the courts have agreed that the constitutional mandates of the various states had not been met.<sup>63</sup> What is questionable is whether litigation is useful to those it purports to assist.

The study's analysis provided data that demonstrated whether finance litigation was effective in increasing PSR levels in a state that had experienced litigation. Thus, future policy analysis regarding educational revenues would be benefited because the quantitative analysis developed by this study provides a clearer understanding of the

relationship between litigation and educational revenues. Thus, if litigation had little effect, then more litigation will not increase that effect. Policy analysts would then focus on developing legislative constructs that would aid future reformers in effectuating lasting change. However, if the study showed that litigation had an impact on revenues, then policy analysts could use the results of this study to support future litigation efforts.

### **Limitations of the Study**

This study did not address the sufficiency of spending levels as it relates to adequacy. Adequacy is a difficult construct to quantify,<sup>64</sup> though it had become the predominant argument in the litigation cases of the 1990s.<sup>65</sup> The study's primary focus, however, was to determine if litigation increased spending in a state substantively more than in those states that had no litigation. Also, the study was not concerned with taxpayer equity. The major question related to per-student revenues within the states. The analysis was completed only to illustrate any growth in spending among the states. Also, the only variables of control were inflation, so other potential variables of effect were not controlled. Hence, the lack of controlling for other potential variables could still demonstrate an effect of change that is not considered in the analysis.

### **Definition of Terms**

**Adequacy** is the concept of enough. The basic understanding is that there are enough resources to provide for a child's educational needs.<sup>66</sup>

**Equality** is the basis for the concept that all people are to be treated at the same level.<sup>67</sup>

**Equalized educational opportunity** relates to the concept of equity and fairness. Basically, every person should have an equal chance to acquire a similar education that will meet his or her personal needs in order to function in society.<sup>68</sup>

**Equity** is the treatment of individuals in a fair and just method in the distribution of resources. It is different from equality in that it focuses on equalizing opportunities rather than equalizing treatment.<sup>69</sup>

**Ex ante** analysis is used to investigate the equity of the formulas prior to distribution of resources. It examines intended consequences such as the way a formula may provide additional funding for special needs students.<sup>70</sup>

**Ex post** analysis is used to examine the actual outcomes, resulting from the school districts response to the states system finance formula.<sup>71</sup>

**Fiscal neutrality** is the principle that the quality of a child s education should not relate to the wealth of the district where that child lives.<sup>72</sup>

**Horizontal equity** is classically defined as the equal treatment of equals.<sup>73</sup>

**Judicial efficacy** is related to the effect of litigation on the change in legislative statutes.<sup>74</sup>

**Per student revenue (PSR)** refers to the figures used in the study to calculate the equity tests. These figures were derived by dividing the total revenues per state by the total enrollment per state for a given year.

**Vertical equity** is the unequal treatment of unequals. This concept deals with treating those who are different in ability differently, so that they might obtain the same opportunity.<sup>75</sup>

### Summary

Providing for the educational needs of children should be a primary focus of any state legislative body.<sup>76</sup> Correspondingly, a free society should also concern itself with providing all children an educational experience that will equip them to handle the intellectual vicissitudes of a modern society.<sup>77</sup> The cornucopia of litigation directed at creating an equitable balance of spending demonstrates that the concern for equity is not a forefront issue in state legislatures, separated from political partisanship. Equal educational opportunity should go beyond the dockets of a courtroom and into the provision of the educational experience of all children.<sup>78</sup> Yet, when that educational opportunity is jeopardized by a lack of funding, equality will remain unachieved. Equitable funding at adequate levels is a necessity not a dream of America's educational system. However, achieving equity through a litigious method would be counterproductive if that method provided little improvement in the system it purported to help. Thus, if the goal of education finance reform is to increase resource levels for education, and if litigation proves to be ineffective in aiding that goal, then the focus of finance reform needs to change toward the best means that can accomplish that goal.

The scope of this study was not designed to provide a conclusive definition of equity, or to juxtapose equity with adequacy, nor did this study attempt to argue the veracity of equitable treatment with adequate levels of funding for each school child. The study started with the premise that equity in educational opportunity for children was a meaningful endeavor for all states to achieve. Also, the study was not concerned with arguing the correct view of adequacy in educational funding.



The effects of finance litigation on educational spending within the states has not been fully researched. This study was a step in that task. This study continued the work of Hickrod, et al. into another level of inquiry; that is, it attempted to provide some quantifiable statistics to the discussion of finance litigation's effect on educational spending. The impact of the study will be seen as other researchers begin to analyze the methodology and findings of the study.

The independence of state educational systems is exemplified in the multifarious funding formulas. The distribution of funding is as inventive as the uniqueness of the political bodies that govern it. Hence, this study did not attempt to provide any suggestions to provide greater equity or uniformity to the process. What this study did accomplish was to provide some insight into the complexity of the struggle to educate this country's children.

### Notes

<sup>1</sup> David C. Thompson, R. Craig Wood, and David S. Honeyman, *Fiscal Leadership for Schools: Concepts and Practices* (New York: Longman, 1994), 271.

<sup>2</sup> 149 Mass. 346, 21 N.E. 668.

<sup>3</sup> 175 U.S. 528, 20 S.Ct. 197, 44 L.Ed. 262.

<sup>4</sup> Thompson, Wood, and Honeyman, *Fiscal Leadership*, 271.

<sup>5</sup> 347 U.S. 483, 74 S.Ct. 686; 98 L.Ed. 873 (1954).

<sup>6</sup> *Brown*, 347 U.S. at 493.

<sup>7</sup> *Id.*, at 495.

<sup>8</sup> R. Craig Wood and David C. Thompson, *Education Finance Law: Constitutional Challenges to State Aid Plans-An Analysis of Strategies*, 2nd ed. (Topeka, KS: National Organization on Legal Problems of Education, 1996), 10.

<sup>9</sup> Kern Alexander and M. David Alexander, *American Public School Law*, 4th ed. (Belmont, CA: West/Wadsworth, 1998), 786.

<sup>10</sup> See, e.g., in Alabama: *Opinion of the Justices*, 624 So.2d 107 (1993); *Ex Parte James*, 713 So.2d 869 (1997); Alaska: *Hootch v. Alaska State Operated Sch. Sys.*, 536 P.2d 793 (1975); *Matanuska-Susitna Borough Sch. Dist. v. Alaska*, 931 P.2d 391 (1997); *Kasayulie v. State*, No. 3AN 97-3782 Civ. (Superior Court, filed 1997); Arizona: *Shofstall v. Hollins*, 110 Ariz. 88, 515 P.2d 590 (1973); *Roosevelt Elementary Sch. Dist. v. Bishop*, 179 Ariz. 233, 877 P.2d 806 (1994); *Hull v. Albrecht*, 190 Ariz. 520, 950 P.2d 1141 (1997); *Hull v. Albrecht*, 192 Ariz. 34, 960 P.2d 634 (1998); Arkansas: *Dupree v. Alma Sch. Dist.*, 279 Ark. 340, 651 S.W.2d 90 (1983); *Tucker v. Lake View Sch. Dist.*, 323 Ark. 693, 917 S.W.2d 530 (1996); California: *Serrano v. Priest*, 5 Cal.3d 584, 487 P.2d 1241 (1971) (*Serrano I*); *Serrano v. Priest*, 18 Cal.3d 728, 557 P.2d 929 (1976), *cert. denied sub nom. Clowes v. Serrano*, 432 U.S. 907 (1977) (*Serrano II*); Colorado: *Lujan v. State Bd. of Educ.*, 649 P.2d 1005 (1982); *Giardino v. Colorado State Bd. of Educ.*, Civil Action No. 98 CV 246 (Denver District Court, filed February 21, 1998); Connecticut: *Horton v. Meskill*, 172 Conn. 615, 376 A.2d 359 (1977) (*Horton I*); *Horton v. Meskill*, 195 Conn. 24, 486 A.2d 1099 (1985) (*Horton II*); *Johnson v. Rowland*, (Middletown Superior Court, filed December 1998); Florida: *Coalition v. Chiles*, 680 So.2d 400 (1996); *Honore v. Florida State Bd. of Educ.* (Leon County Circuit Court, filed January 1999); Georgia: *McDaniel v. Thomas*, 248 Ga. 632, 285 S.E.2d 156 (1981); Idaho: *Thompson v. Engelking*, 96 Idaho 793, 537 P.2d 635 (1975); *Idaho Sch. for Equal Educ. Opportunity v. Evans*, 123 Idaho 573, 850 P.2d 724 (1993); Illinois: *Committee for Educ. Rights v. Edgar*, 174 Ill.2d 1, 672 N.W.2d 1178 (1996); Kansas: *Knowles v. State Bd. of Educ.*, 219 Kan. 271, 547 P.2d 699 (1976); *Unified Sch. Dist. v. State*, 256 Kan. 232, 885 P.2d 1170 (1994); *Robinson v. State*, No. 99-1193 (U.S. District Court, Kansas, filed May 21, 1999); Kentucky: *Rose v. Council for Better Educ.*, 790 S.W.2d 186 (1989); Louisiana: *Minimum Found. Comm'n v. State*, Docket No. 97CW0212 (La. Ct. App., June 29, 1998); *supervisory or remedial writ denied* (La. Sup. Ct., Nov. 13, 1998); Maine: *School Admin. Dist. v. Commissioner*, 659 A.2d 854 (1995); Maryland: *Hornbeck v. Somerset County Bd. of Educ.*, 295 Md. 597, 458 A.2d 758 (1983); *Bradford v. State Board of Education*, Circuit Court for Baltimore City (Consent Decree, Nov. 26, 1996) (described in related case of *Montgomery County v. Bradford*, 345 Md. 175, 691 A.2d 1281 (1997)); Massachusetts: *McDuffy v. Secretary of the Executive Office of Educ.*, 415 Mass. 545, 615 N.E.2d 516 (1993); Michigan: *Milliken v. Green*, 389 Mich. 1, 203 N.W.2d 457 (1972); *vacated*, 390 Mich. 389, 212 N.W.2d 711 (1973); *East Jackson Pub. Sch. v. State*, 133 Mich.App. 132, 348 N.W.2d 303 (Mich. App. 1984); Minnesota: *Skeen v. State*, 505 N.W.2d 299 (1993); *Minneapolis Branch, NAACP v. State*, No. 95-14800 (Hennepin County District Court, filed Sept. 19, 1995); *Independent Sch. Dist. v. State*, No. 62-C2-96-009356 (Ramsey County District Court) (Stipulated voluntary dismissal with leave to reopen under certain conditions filed and ordered July 27, 1999); *Xiong v. State*, No. 98-2816 (Hennepin County District Court, filed Feb. 23, 1998); Missouri: *Committee for Educ. Equal. v. State*, 878 S.W.2d 446 (1994); Montana: *State ex. Rel. Woodahl v. Straub*, 161 Mont. 141, 520 P.2d 776 (1974); *Helena Elementary Sch. Dist. v. State*, 236 Mont. 44, 769 P.2d 684 (1989), *amended*, 784 P.2d 412 (1990); Nebraska: *Gould v. Orr*, 244 Neb. 163, 506 N.W.2d 349 (1993); New Hampshire: *Claremont Sch. Dist. v. Governor*, 138 N.H. 183, 635 A.2d 1375 (1993); *Claremont Sch. Dist. v. Governor*, 142 N.H. 462, 703 A.2d 1353 (1997); *Opinion of the Justices*, 142 N.H. 892, 712 A.2d 1080 (1998); New Jersey: *Robinson v. Cahill*, 62 N.J. 473, 303 A.2d 273 (1973), *supplemental opinion*, 63 N.J. 196, 306 A.2d 65 (1973), *cert. denied sub nom.*, *Dickey v. Robinson*, 414 U.S. 976 (1973); *Abbott v. Burke*, 100 N.J. 269, 495 A.2d 376 (1985) (*Abbott I*); *Abbott v. Burke*, 119 N.J. 287, 575 A.2d 359 (1990) (*Abbott II*); *Abbott v. Burke*, 136 N.J. 444, 643 A.2d 575 (1994) (*Abbott III*); *Abbott v. Burke*, 149 N.J. 145, 693 A.2d 417 (1997) (*Abbott IV*); *Abbott v. Burke*, 153 N.J. 480, 710 A.2d 450 (1998) (*Abbott V*); New York: *Board of Educ. Levittown Union Free Sch. Dist. v. Nyquist*, 57 N.Y.2d 127, 439 N.E.2d 359 (1982); *Campaign for Fiscal Equity v. State*, 86 N.Y.2d 307, 631 N.Y.S.2d 565 (1995); *Reform Educ. Fin. Inequities Today (R.E.F.I.T) v. Cuomo*, 86 N.Y.2d 279, 631 N.Y.S.2d 551 (1995); North Carolina: *Britt v. North Carolina State Bd. of Educ.*, 86 N.C. App. 282, 357 S.E.2d 432, *affirmed mem.* 320 N.C. 790, 361 S.E.2d 71 (1987); *Leandro v. State*, 346 N.C. 336, 488 S.E.2d 249 (1997); North Dakota: *Bismarck Pub. Sch. Dist. v. State*, 511 N.W.2d 247 (N.D. 1994); Ohio: *Board of Educ. v. Walter*, 58 Ohio St.2d 368, 390 N.E.2d 813 (1979), *cert. denied*, 444 U.S. 1015 (1980); *DeRolph v. State*, 78 Ohio St.3d 193, 677 N.E.2d 733 (1997); Oklahoma: *Fair Sch. Fin. Council of Okla. v. State*, 746 P.2d 1135 (Okla. 1987); Oregon: *Olsen v. State*, 276 Ore. 9, 554 P.2d 139 (1976); *Coalition for Equitable Sch. Funding v. State*, 311 Or. 300, 811 P.2d 116 (1991); *Withers v. State*, 133 Or.App. 377, 891 P.2d 675 (1995); *on remand, Withers v. State*, No. 94-CV-0074-TM (Deschutes County Circuit Court), (plaintiffs' petition for supplemental relief granted, Feb. 28, 1997); Pennsylvania: *Danson v. Casey*, 484 Pa. 415, 399 A.2d 360 (1979); *Marrero v. Commonwealth*, 709 A.2d 956 (Commonwealth Court 1998); *Pennsylvania Ass'n of Rural & Small Sch.*

v. *Commonwealth*, Docket No. 11 M.D.1991 (Commonwealth Court, July 9, 1998); Rhode Island: *City of Pawtucket v. Sundlun*, 662 A.2d 40 (R.I. 1995); South Carolina: *Richland County v. Campbell*, 294 S.C. 346, 364 S.E.2d 470 (1988); *Abbeville County Sch. Dist. v. State*, 335 S.C. 58, 515 S.E.2d 535, 1999 S.C. Lexis 83 (1999); Tennessee: *Tennessee Small Sch. Sys. v. McWhorter*, 851 S.W.2d 139 (1993); *Tennessee Small Sch. Sys. v. McWhorter*, 894 S.W.2d 734 (1995); Texas: *San Antonio Indep. Sch. Dist. v. Rodriguez*, 411 U.S. 1, 93 S.Ct. 1278 (1973); *Edgewood Indep. Sch. Dist. v. Kirby*, 777 S.W.2d 391 (1989); *Edgewood Indep. Sch. Dist. v. Kirby*, 804 S.W.2d 491 (1991); *Edgewood Indep. Sch. Dist. v. Meno*, 893 S.W.2d 450 (1995); Vermont: *Brigham v. State*, 166 Vt. 246, 692 A.2d 384 (1997); Virginia: *Scott v. Commonwealth*, 443 S.E.2d 138 (1994); Washington: *Northshore Sch. Dist. v. Kinnear*, 84 Wash.2d 685, 530 P.2d 178 (1974); *Seattle Sch. Dist. v. State*, 90 Wash.2d 476, 585 P.2d 71 (1978); West Virginia: *Pauley v. Kelly*, 162 W.Va. 672, 255 S.E.2d 859 (1979), *on remand sub nom Pauley v. Bailey*, C.A. No. 75-1268 (Circuit Court of Kanawha County, May 11, 1982); *Pauley v. Bailey*, 324 S.E.2d 128 (1984); *State ex rel. v. Chafin* 376 S.E.2d 113 (1988); *Tomblin v. Gainer*, Civil Action No. 75-1268 (Circuit Court of Kanawha County, April 2, 1997); Wisconsin: *Kukor v. Grover*, 148 Wis.2d 469, 436 N.W.2d 568 (1989); *Vincent v. Voight*, No. 95-CV-2586 (Circuit Court of Dane County, July 18, 1997); *affirmed with unpublished opinion*, Docket No. 97-3174 (Wis. Ct. of Appeal, Dec. 23, 1998); Wyoming: *Washakie County Sch. Dist. v. Herschler*, 606 P.2d 310 (1980), *cert. denied sub nom., Hot Springs County Sch. Dist. v. Washakie County Sch. Dist.*, 449 U.S. 824 (1980); *Campbell County Sch. Dist. v. State*, 907 P.2d 1238 (1995).

<sup>11</sup> Alexander and Alexander, *American Public School Law*, 786.

<sup>12</sup> See, e.g. Jonathan Kozol, *Savage Inequalities* (New York: Crown Publishers, Inc., 1991); Cass R. Sunstein, *The Partial Constitution* (Cambridge, MA: Harvard University Press, 1993); Wood and Thompson, *Education Finance Law*, Robert Berne and Leanna Stiefel, *Concepts of School Finance Equity: 1970 To the Present*, in *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen (Washington DC: National Academy Press, 1999), 7-33; Paul A. Minorini and Stephen D. Sugarman, *School Finance Litigation in the Name of Educational Equity: Its Evolution, Impact, and Future*, in *Equity and Adequacy*; John E. Coons, William H. Clune III, and Stephen D. Sugarman, *Private Wealth and Public Education* (Cambridge, MA: Harvard University Press, 1970).

<sup>13</sup> For a detailed explanation of Brown's impact on litigation and the subsequent federal response to using Brown, see Thompson, Wood, and Honeyman, *Fiscal Leadership*, 270-275. For early cases that dealt with the federal constitutionality of education, see *McInnis v. Shapiro*, 293 F. Supp. 327 (N.D. Ill. 1968), *affirmed sub nom. McInnis v. Olgiwie*, 394 U.S. 322, 89 S.Ct. 1197 (1969), *Burruss v. Wilkerson*, 310 F. Supp. 572 (W.D. Va. 1969), *affirmed* 397 U.S. 44, 90 S.Ct. 812 (1970); *Serrano I*, 5 Cal.3d 584, 487 P.2d 1241 (1971); and *Rodriguez*, 411 U.S. 1, 93 S.Ct. 1278 (1973).

<sup>14</sup> U.S. Const. amend. XIV, / 1.

All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

<sup>15</sup> Alexander and Alexander, *American Public School Law*, 793. For cases that have applied this principle of non-interference, see *School Dist. of Woods County v. Hodge*, 199 Okl. 81, 183 P.2d 575 (1947); *Hess v. Mullane*, 213 F.2d 635 (9th Cir. 1954), *cert. denied Hess v. Dewey*, 348 U.S. 836, 75 S.Ct. 50 (1954); *McInnis*, 293 F. Supp. 327 (N.D. Ill. 1968) *affirmed sub nom. Olgiwie*, 394 U.S. 322, 89 S.Ct. 1197 (1969); *Burruss*, 310 F. Supp. 572 (W.D. Va. 1969), *affirmed* 397 U.S. 44, 90 S.Ct. 812 (1970).

<sup>16</sup> See, e.g. *Hess*, 348 U.S. 836, 75 S.Ct. 50 (1954); *McInnis*, 394 U.S. 322, 89 S.Ct. 1197 (1969); *Burruss*, 397 U.S. 44, 90 S.Ct. 812 (1970); and *Rodriguez*, 411 U.S. 1, 93 S.Ct. 1287 (1973).

<sup>17</sup> Alexander and Alexander, *School Law*, 793. The authors cite Justice Jackson from *Bell s Gap Railroad Co. v. Pennsylvania*, 134 U.S. 232, 10 S.Ct. 533 (1890):

Equal Protection does not require identity of treatment. It only requires that classification rest on real and not feigned differences, that the distinction have some relevance to the purpose for which the classification is made, and the different treatment be not so disparate, relative to the difference in classification, as to be wholly arbitrary.

<sup>18</sup> *Ibid.*, 793.

<sup>19</sup> *Ibid.* Hess provides a clear example of the federal position. In this decision, the Ninth Circuit denied that the distribution of funds did not carry the same constitutional constraints as the collection of those funds. The court stated that No requirements of uniformity or of equal protection of the law limit the power of a legislature in respect to allocation and distribution of public funds, 213 F.2d 640 (9th Cir. 1954).

<sup>20</sup> *Ibid.*, 793-4. See also, 834 nn. 14, 15.

<sup>21</sup> *Ibid.*, 794. *McInnis*, 293 F.Supp. 327 (N.D. Ill. 1968), affirmed *sub nom. Ogilvie*, 394 U.S. 322, 89 S.Ct. 1197 (1969).

<sup>22</sup> *McInnis*, 293 F.Supp. at 336.

<sup>23</sup> 310 F.Supp. 572 (W.D. Va. 1969), affirmed 397 U.S. 44, 90 S.Ct. 812 (1970).

<sup>24</sup> 5 Cal.3d 584, 487 P.2d 1241 (1971).

<sup>25</sup> 5 Cal.3d at 614, 15, 618.

<sup>26</sup> 5 Cal.3d at 596.

<sup>27</sup> *Id.* at 615. The court opined that we are of the view that the school financing system discriminates on the basis of the wealth of a district and its residents.

<sup>28</sup> Thompson, Wood, Honeyman, *Fiscal Leadership*, 277.

<sup>29</sup> See, e.g., William E. Thro, To Render Them Safe: The Analysis of State Constitutional Provisions In Public School Finance Reform Litigation, *Va. L. Rev.* 75 (1996):420-457; William E. Thro, Judicial Analysis During the Third Wave of School Finance Litigation: The Massachusetts Decision as a Model, *B. C. L. Rev.* 35 (1994): 597-618; and William E. Thro, The Third Wave: The Impact of the Montana, Kentucky, and Texas Decisions on the Future of Public School Finance Reform Litigation, *J. of L. & Educ.* 19 (1994): 212-229. Thro develops a comprehensive analysis between the various state constitutions education clauses and the litigation arguments that has transpired in various states, illustrating that there have been three waves of finance reform litigation in the United States. The first wave of reform began with the *Brown v. Board of Education*, 347 U.S. 483, (1954) and the *Serrano I* case out of California (see footnote 1). The first wave focused on the constitutional right guaranteed by the 14th Amendment of the U.S. Constitution. The idea for reforming the systems was drawn from the Court's statement that today, education is perhaps the most important function of state and local governments.... It is the very foundation of good. Citizenship....In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education (Quote was cited by Margaret Rose Westbrook, School Finance Litigation, *N.C. L. Rev.* 73 (1994): 2127-2145.) With the decision of *Rodriguez*, *supra*, 411 U.S. 1 (1973), the first wave of reform ended. The second wave focused attention on protection on state constitutional grounds, but the cases were so inconsistent that the decisions could not sufficiently foster sufficient change (Margaret R. Westbrook, *supra*, 2129). The third wave was based on the constitutionality of a state's school funding schemes. The cases of *Helena Elem. Sch. Dist. No. 1 v. State*, 769 P.2d 684 (1989), *Edgewood Indep. Sch. Dist. v. Kirby*, 777 S.W. 2d 391 (1989), and

*Rose v. Council for Better Educ., Inc.*, 790 S.W.2d 186 (1989) helped to establish the credibility of the third wave of reform.

<sup>30</sup> 411 U.S. 1, 93 S.Ct. 1278 (1973).

<sup>31</sup> Alexander and Alexander, *American Public School Law*, 795.

<sup>32</sup> 337 F.Supp. 280 (W.D. Tex.).

<sup>33</sup> *Id.* at 285.

<sup>34</sup> *Id.* at 284.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> 411 U.S. 1, 93 S.Ct. 1278, 36 L.Ed.2d 16 (1973).

<sup>38</sup> Wood and Thompson, *Education Finance Law*, 64.

<sup>39</sup> Alexander and Alexander, *American Public School Law*, 795.

<sup>40</sup> *Rodriguez*, 411 U.S. at 35.

<sup>41</sup> *Ibid.* at 42

<sup>42</sup> *Ibid.*

<sup>43</sup> Alexander and Alexander, *American Public School Law*, 795.

<sup>44</sup> *Ibid.*

<sup>45</sup> See *Serrano II*, 18 Cal.3d 728, 557 P.2d 929 (Cal. 1976).

<sup>46</sup> 5 Cal.3d 584, 487 P.2d 1241, 96 Cal. Rptr. 601 (1971).

<sup>47</sup> *Id.*, 5 Cal.3d at 590-1. Also see, Cal. Const. art IX, sec 5; and Cal. Const. art I, sec. 11 and sec. 21. The full complaint in *Serrano I* was made up of three specific causes. The first cause was based on the claim that the financing scheme of the State of California failed to meet the requirements of the equal protection clause of the Fourteenth Amendment of the United States Constitution and the California Constitution. The second cause was contingent on the first cause. It alleged that the then current funding scheme required plaintiffs, who lived in poor counties, to pay a higher tax rate than those in richer counties. The third cause, also contingent on the first two, alleged that a controversy arose between the parties as to the validity and constitutionality of the financing scheme under the Fourteenth Amendment of the United States Constitution and also under the California Constitution. Thus, the plaintiffs sought for the court to declare the financing system unconstitutional; order the defendants to reallocate school funds to remedy the problem; and adjudicate that the trial court retain jurisdiction to oversee compliance of the ruling.

<sup>48</sup> See *Serrano II*, 5 Cal.3d at 763-4.

<sup>49</sup> *Id.* at 764.

<sup>50</sup> *Id.*

<sup>51</sup> See, e.g., *McInnis v. Shapiro*, 293 F. Supp. 327 (N.D. Ill. 1968); *Burruss v. Wilkerson*, 310 F. Supp. 572 (W.D. Va. 1969); *Parker v. Mandel*, 344 F. Supp. 1068 (N. D. Md. 1972); *San Antonio Indep. Sch. Dist. v. Rodriguez*, 411 U.S. 1 (1973); *Serrano v. Priest*, 557 P.2d 929 (1976) (Serrano II); *Horion v. Meskill*, 376 A.2d 359 (1977); *Lujan v. Colorado State Bd. Of Educ.*, 649 P.2d 1005 (1982); *Board of Educ., Levittown Union Free Sch. Dist. v. Nyquist*, 439 N.E.2d 359 (1982); *Hornbeck v. Somerset County Bd. Of Educ.*, 458 A.2d 758 (1983); *Britt v. North Carolina State Bd. Of Educ.*, 357 S.E.2d 432 (1987); *Rose v. Council for Better Educ., Inc.*, 790 S.W.2d 186 (1989); *Skeen v. State*, 505 N.W.2d 299 (1993); *Tennessee Small Sch. Sys. V. McWherter*, 851 S.W.2d 139 (1993); *Leandro v. State*, 468 S.E.2d 543 (N.C. App 1996).

<sup>52</sup> The first attempts to break the barrier from equity to adequacy were *Helena Elementary Sch. Dist. v. State*, 769 P.2d 684 (1989); modified in *Helena Elementary Dist. v. State*, 784 P.2d 412 (1990); *Rose v. Council For Better Educ.*, 790 S.W.2d 186 (1989); *Edgewood Indep. Sch. Dist. v. Kirby*, 777 S.W.2d 391 (1989).

<sup>53</sup> See *Shofstall v. Hollins*, 515 P.2d 590 (1973); *Blase v. State*, 302 N.E.2d 46 (1973); *Northshore Sch. Dist. v. Kinnear*, 530 P.2d 178 (1974); *Seattle Sch. Dist. No. 1 of King County v. State*, 585 P.2d 71 (1978); *Thompson v. Engelking*, 537 P.2d 635 (1975); *Olsen v. State*, 554 P.2d 139 (1976); *Scarnato v. Parker*, 415 F.Supp. 272 (M.D.La. 1976); *Olsen v. State of Oregon*, 554 P.2d 139 (1976); *Coalition for Equitable School Funding Inc. v. Oregon*, 811 P.2d 116 (1991); *Board of Levittown*, 8 A.D. 217 (A.D. 1981); *Danson v. Casey*, 399 A.2d 360 (1979); *Britt v. North Carolina State Bd. Of Educ.*, 357 S.E.2d 432 (1987); *Leandro v. State*, 468 S.E.2d 543 (N.C. App 1996).

<sup>54</sup> See, notes 8, 32, and 33.

<sup>55</sup> G. Alan Hickrod et al., The Effect of Constitutional Litigation in Education Finance: A Preliminary Analysis, *Journal of Education Finance* 18 (1992): 180-210.

<sup>56</sup> See, e.g., Michael Heise, The Effect of Constitutional Litigation on Education Finance: More Preliminary Analyses and Modeling, *Journal of Education Finance* 21, no. 2 (1995): 195-216; Lauri Peterneck, The Effect of Overturning Educational Funding Practices Through the State Courts on Overall Per Pupil Expenditures (paper presented at the annual meeting of the American Education Finance Association, Savannah, GA, March 1995); G. Alan Hickrod et al., The Effect of Constitutional Litigation on Educational Finance: A Further Analysis, in *Selected Papers in School Finance 1995* [database online]; available from <http://nces.gov/pubs97/97536-3.html>.

<sup>57</sup> PSR will stand for per-student revenue. This is the average of revenues divided by enrollments for the states. The study analyzed revenues generated by the state, combining both state and local revenues. The purpose for looking at revenues instead of actual spending is that revenues are easier to calculate and unify than expenditures because some states included different variables in their expenditures calculations for per-student calculations.

<sup>58</sup> Hickrod et al., The Effect of Constitutional Litigation in Education Finance: A Preliminary Analysis, 181-183.

<sup>59</sup> *Ibid.* at 201.

<sup>60</sup> National Center for Education Statistics, *Digest of Education Statistics: 1966-1997* (Washington, DC: GPO, 1966-1997).

<sup>61</sup> See Leanna Stiefel and Robert Berne, The Equity Effects of State School Finance Reforms: A Methodological Critique and New Evidence, *Policy Sciences* 75 (1981); Myron Schwartz and Jay Mokowitz, *Fiscal Equity in the United States, 1984-85* (1988); Wayne C. Riddle, *Expenditures in Public School Districts: Why Do They Differ?* (1990); Paul E. Barton et al., *The State of Inequality* (1991); James H. Wyckoff, The Intrastate Equality of Public Primary and Secondary Education Resources in the U.S., *Economics of Education Review* 11 (1992).

<sup>62</sup> Thompson, Wood, and Honeyman, 49.

<sup>63</sup> See *San Antonio Indep. Sch. Dist. v. Rodriguez*, 411 U.S. 1 (1973), *Serrano v. Priest*, 557 P.2d 929 (1976) (Serrano II), *Horton v. Meskill*, 376 A.2d 359 (1977), *Lujan v. Colorado State Bd. Of Educ.*, 649 P.2d 1005 (1982), *Board of Educ., Levittown Union Free Sch. Dist. v. Nyquist*, 439 N.E.2d 359 (1982), *Hornbeck v. Somerset County Bd. Of Educ.*, 458 A.2d 758 (1983), *Britt v. North Carolina State Bd. Of Educ.*, 357 S.E.2d 432 (1987), *Rose v. Council for Better Educ., Inc.*, 790 S.W.2d 186 (Ky. 1989), *Skeen v. State*, 505 N.W.2d 299 (1993), *Tennessee Small Sch. Sys. V. McWherter*, 851 S.W.2d 139 (1993), *Leandro v. State*, 468 S.E.2d 543 (N.C. App 1996).

<sup>64</sup> Thompson, Wood, and Honeyman, 43.

<sup>65</sup> Michael Heise, *Equal Educational Opportunity, Hollow Victories, and the Demise of School Finance Equity Theory: An Empirical Perspective and Alternative Explanations*, 32 Ga. L. Rev. 545.

<sup>66</sup> *Ibid.*, 56.

<sup>67</sup> *Ibid.*, 57.

<sup>68</sup> Wood and Thompson, 53.

<sup>69</sup> Thompson, Wood, and Honeyman, 56-57

<sup>70</sup> Berne and Stiefel, Concepts of School Finance Equity, in *Equity and Adequacy*, 12.

<sup>71</sup> *Ibid.*

<sup>72</sup> Thompson, Wood, and Honeyman, 178-179.

<sup>73</sup> *Ibid.*, 18.

<sup>74</sup> John Dayton, Examining the Efficacy of Judicial Involvement in Public School Funding Reform, *Journal of Education Finance* 22, no. 3 (1996) 2-3.

<sup>75</sup> *Ibid.*

<sup>76</sup> Elwood P. Cubberly, *School Funds and Their Apportionment* (New York: Columbia University, 1906), 17.

<sup>77</sup> *Ibid.*

<sup>78</sup> Paul R. Mort, *The Measurement of Educational Need* (New York: Columbia University Teachers College, 1924), 8.

## CHAPTER 2 REVIEW OF LITERATURE

### Introduction

The benefits of education and the role of government had been the subject of inquiry for many centuries, and earlier discussions of education and its impact on society had provided the base for educational equality theories of the Twentieth Century.<sup>1</sup> Also, since education is a public trust and because education provides both intrinsic and extrinsic value for the individual and society,<sup>2</sup> the method chosen for implementing it had come under closer scrutiny by all aspects of society, and oftentimes, competing interest had plied for change at the expense of other groups.<sup>3</sup> The economic benefits of education, with the promise of advancement and wealth to those who have the most knowledge, further motivated individuals within a democratic society to capture as much knowledge as possible in order to gain financially in a capitalistic marketplace.<sup>4</sup> The caveat, of course, is that some groups may garner more educational resources than other groups, and because of their derived position of power and influence, these influential groups may deny educational benefits to other groups.<sup>5</sup> Thus, this competitiveness by the various factional interests in education certainly contributed to the rise of litigation that challenged the distribution formula for education in many states during the second half of the Twentieth Century. However, the virtue of these challenges were based on the belief in the value of education for the social and economic benefit of society, which had been



strongly held in this country since its inception, and had come to fruition even more strongly in the Twentieth Century.<sup>6</sup>

Because of the multiplicity of cases litigating the constitutionality of state finance formulas during the 1990s,<sup>7</sup> the end of education finance reform efforts did not appear probable, nor did the likelihood that the focus of reform, i.e. utilizing the courts to effect legislative decisions, would change.<sup>8</sup> The overriding goal of reformers, which can be gleaned from current litigation efforts, was that all children should be given an equal educational opportunity with funding that provides adequate levels of learning. Though the purpose of reform was noble, the implementation of litigation efforts had not been without some problems, for inherent within the purpose of education finance reform was the dilemma between whether funding should be equitable, adequate or both.<sup>9</sup>

### **The Dilemma in Education Finance Reform**

The initial dilemma faced by education finance reform advocates was the economic concerns related to public education. The question was whether to finance schools based on the principles of equity or on providing a level of excellence for children to be competitive on a world market.<sup>10</sup> Compounded within this tension was that many policy makers failed to understand the nature of the problem in order to provide an adequate solution.<sup>11</sup>

Another problem faced by plaintiffs was the issue of demonstrating the inequity of a state's funding formula. Plaintiffs needed to demonstrate that the current state formula failed to provide equitable educational opportunities for all districts within the classroom level.<sup>12</sup> The dilemma faced by the plaintiffs can be summarized as follows:

In effect, plaintiffs must make a twofold argument: (a) The general aid formula is inequitable, and (b) as a result, the formula creates unequal educational opportunities across the state. If the first argument is lost, then the second cannot follow without admission that the local school districts are at fault. If the general state aid distributional formula were judged as acceptable, then the disparate results are essentially self-created by the plaintiff school districts, and serious questions must be raised as to why these differences exist.<sup>13</sup>

Thus, if plaintiffs could not illustrate that inequity was caused by the distribution formula, then the courts would assume that the formula was equitable; hence, the courts would presume that any unequal educational opportunities were caused by the districts, and, therefore, the districts would be responsible for correcting the problem and not the state. In effect, the burden of proof was on the plaintiffs, and proving the inadequacy of a state's distribution formula based on that state's constitution had not been easily accomplished because the analyses of the various state distribution formulas produced decisions as various as the state constitutions, resulting in a state of unpredictability for anyone considering litigation.<sup>14</sup>

Also, the courts may have viewed the plaintiffs' arguments, that education funds were inadequate for a given state, as an issue for the state legislatures to determine.<sup>15</sup> If the courts had viewed the plaintiffs' arguments in this aspect, and the state defendants successfully characterized the plaintiffs' claims as solely relating to distributional adequacy, then the state's defense was enhanced significantly. Thus, for plaintiffs to be successful, their case must have represented solid legal strategies, knowledge of research in education finance, and expert analysis.<sup>16</sup> Also, plaintiffs must have demonstrated that the state formula for financing public schools had failed at the classroom level.<sup>17</sup>

The objective for the plaintiffs, then, was to present an argument that would direct the blame for poor student performance away from the pedagogical practices of the district and phrase it into one where performance was the result of funding, which has not been easily supported by research.<sup>18</sup> However, the connection between spending and student outcomes was a primary argument for many cases that challenge the constitutionality of state funding formulas.<sup>19</sup> This dilemma had created the shift from arguing for equitable distribution of finances toward an argument for more sufficient, adequate, finances.<sup>20</sup>

Equity and adequacy arguments each posed problems for reformers. One problem with equity analysis was which group would be the focus of study because within the area of equity analysis, two groups were concentrated on, taxpayers and children.<sup>21</sup> Children had to be included as targets for equity because education was viewed as an investment in their future, and there was a concern by analyst that expenditures needed to be equitable for all children's educational experiences.<sup>22</sup> Taxpayer equity was also a concern because the responsibility for supporting public education should rely on all taxpayers equally according to their ability to pay.<sup>23</sup> Another more egregious perspective relating to equity was the potential to confuse it with equality.<sup>24</sup> If one argued for equity as equality, then those students who received more initially, may be placed in a position of receiving less. Therefore, students who received more because they were from a poor school district do so at the punitive expense of those from richer school districts, or there would be a need to find new money to enhance the level of spending in poor school districts.<sup>25</sup> Hence, equity evolved as a different concept from equality and developed to

encompass two constructs, horizontal and vertical equity. Horizontal equity refers to dollar for dollar spending, where vertical equity relates to the concept that unequal spending may be needed to equalize educational opportunity.<sup>26</sup> Thus, as scholars like Thompson, Wood and Honeyman have stated, equity is not blind equality.<sup>27</sup> The distinction between equity and equality and subsequent division of equity terms had led to a change in the practice of distributing finances to different groups of children based on need.<sup>28</sup>

Adequacy had created a new burden of proving what level of funding was needed to create a quality education, and the concept of an adequate education had not been clearly defined.<sup>29</sup> The problem with adequacy lawsuits was constructing an argument that would convince a court that poor districts were not receiving adequate levels of expenditures to provide a quality education in comparison to richer districts.<sup>30</sup> Adequacy arguments also faced unexpected obstacles: adequacy asked for more money for students involved, which became problematic during recessionary times, and increased funding to provide for an adequate education places education in a position of competing with other social programs for limited resources and during a time of growing taxpayer dissatisfaction.<sup>31</sup> With these entanglements in mind, adequacy proponents had sought new directions in arguing finance litigation cases.<sup>32</sup>

One definition of adequacy referred to a level of resources that would provide a sufficient level of educational result.<sup>33</sup> Berne and Stiefel posited that adequacy also had an *ex ante* and *ex post* definition. By *ex ante*, they meant that adequacy involved reviewing the outputs that were desired and determining how they were to be measured. By *ex*

post, they meant that the results of the monetary effort could be quantified by viewing different types of outcomes like test scores, graduation rates, attendance rates, and college enrollment.<sup>34</sup> The overall impact of the adequacy movement had been a stronger focus on a sufficiency of inputs to achieve a desired minimum output for each child.<sup>35</sup> Minorini and Sugarman summarize the adequacy approach as follows:

What is most distinctive about the adequacy approach is that, unlike the traditional school finance cases, it does not rest on a norm of equal treatment. Indeed, the adequacy cases aren't about equality at all, except in the sense that all pupils are equally entitled to at least a high-minimum. In other words, adequacy is not a matter of comparing spending on the complaining group with spending on others. It is rather about spending what is needed (and its focus is in some respects more on the school or the pupil than on the district).<sup>36</sup>

Further, the success of the adequacy argument was visualized in some courts' willingness to consider adequacy as a viable argument for determining the efficiency of outcome measures in education finance legislation.<sup>37</sup>

This study focused on the relationship between finance litigation and per-student spending in the states. The study reviewed whether lower-spending states had gained on higher-spending states after litigation and whether the gain in spending levels could be correlated to the litigation that had occurred in these states. In order to create a theoretical foundation for this relationship, the study reviewed a brief history of education finance litigation in the United States, provided a background review of education finance study, and described the research that had attempted to define the relationship between education finance litigation and per-student spending in the states. The purpose for this course of review was to develop the relationship between litigation and per-student

resources within a state. Does litigation lead to increased resources in a given state?

Establishing this relationship will encourage future researchers to further investigate and quantify this relationship.

### **Education Finance Litigation**

#### **Early Steps Toward Equality**

The concept of equality under the law is not new to the American ideal.<sup>38</sup> The challenge of education finance reformers was to develop a legal argument which would convince the courts, both on the federal and state levels, that education was a constitutionally protected right for every student, and bringing the challenge to the first to the federal level was an obvious choice because if plaintiffs could win decisions at the federal level, then states would have to comply.<sup>39</sup> Thus, the use of the Fourteenth Amendment as a means of establishing equality was a natural decision.<sup>40</sup>

Thompson, Wood and Honeyman described three strands of court cases, utilizing the Fourteenth Amendment, that laid the foundation for educational equality theories. They stated the following:

The first strand was a series of lawsuits under the heading of segregation, in which enforcement of equality before the law for all persons was sought. The second strand was a series of cases known as the reapportionment decisions, establishing the principle of one man, one vote. The third strand sprang from lawsuits that became known as the indigent defendants and administration of criminal justice cases, which established that defendants may not be denied the right of appeal simply because of inability to pay for a transcript of trial proceedings because such denial is tantamount to wealth discrimination. Although seemingly unrelated to school finance, these strands were to lay a framework for equal protection in resource distribution.<sup>41</sup>

These strands had no initial relationship to education, but they established a Supreme Court precedent of equality under the law that was used in the arguments presented in the first cases of modern education finance, using the federal constitution, and have had an influence within the individual state cases, using the state equal protection clauses.<sup>42</sup> Further, Thompson, Wood and Honeyman emphasize that the impact of the Fourteenth Amendment's nondiscrimination clause resulted in two lines of cases that created two separate arguments for finance reformers. The first line dealt with unequal treatment of a suspect class, such as race, ethnicity, or alienage. Suspect classes were viewed by the courts as those that could not change their characteristics. The second line developed from cases where a fundamental right was curtailed.<sup>43</sup> Thompson, Wood and Honeyman summarized that the effect of these two lines on education finance provided litigants with two arguments that, if accepted by the courts, would place the burden on the defendants to show a specific state interest for keeping the current system of resource distribution.<sup>44</sup>

The first challenge to the method of disbursing education could be traced to the early segregation case of *Plessy v. Ferguson*<sup>45</sup> in 1896.<sup>46</sup> *Plessy* challenged the then current practice in many states of providing separate facilities based on race. The decision of the Supreme Court in *Plessy* acknowledged the differences between the two races and upheld the legality of that difference. *Plessy* had actually affirmed the separate-but-equal doctrine established in an earlier Massachusetts Supreme Court case that dealt with a black child's right to be taught in a white school.<sup>47</sup> Thus, although the Massachusetts case was not at issue in *Plessy*, the decision of separate-but-equal, created by the Massachusetts court, was nationalized in the Supreme Court's ruling in *Plessy*.

What connected *Plessy* to education was the Court's affirmation of the right of black students to have equal treatment with white students.<sup>48</sup>

The case of *Cummings v. Board of Richmond County*<sup>49</sup> utilized the principles set out in *Plessy*. In *Cummings*, a group of black students sued the Board of Education of Richmond County, Georgia, citing that the board failed to provide a black high school when it had already provided a white high school. The black students argued that the board's failure was in violation of the decision in *Plessy*. The Supreme Court ruled in favor of the school board, stating that to build a black high school would deprive the white students of an already established privilege, since the board could not afford to build two schools. In effect, the *Cummings* decision applied an economic standard to the separate-but-equal doctrine and further qualified the board of education's denial to build a black school as nondiscriminatory and not a intentional denial of equal treatment.<sup>50</sup> The decision of *Plessy* and *Cummings* established the position of the Court regarding equality in educational treatment until the 1950s.

The reversal of the judicial perspective of separate-but-equal occurred with the case of *Brown v. Board of Education*.<sup>51</sup> The Supreme Court overturned its earlier policy of separate-but-equal, established by *Plessy*, and now viewed that policy as unattainable, unrealistic, and unconstitutional. What the Court now opined was that equality could only come when students had equal access to all facilities.<sup>52</sup> Thus, the decision in *Brown* established a precedent for later cases dealing with equal educational opportunity.<sup>53</sup>



## Early Education Finance Litigation

The view of the Supreme Court in *Brown*, that equality meant that all students have equal access to equal educational opportunities, provided the construct for the earliest theories of education finance litigation.<sup>54</sup> Since case law was lacking in relation to education resources, plaintiffs used the concept of equality, developed in *Brown*, and crafted arguments based on *Brown*, and the three strands of cases dealing with the Fourteenth Amendment.<sup>55</sup> Early thinkers<sup>56</sup> had agreed that equality of educational opportunity should be a right protected by the equal protection clause of the Fourteenth Amendment to the Constitution,<sup>57</sup> but they differed as to what was meant by equal protection.<sup>58</sup> Thus, the early theories of horizontal and vertical equity developed by Wise and Horowitz<sup>59</sup> were initially ignored by lawyers in favor of a more needs-based approach.<sup>60</sup> Although the approach was simplistic, it met with a problem in the two court decisions of *McInnis v. Shapiro*,<sup>61</sup> and *Burrus v. Wilkerson*.<sup>62</sup> The plaintiffs in both *McInnis* and *Burrus* claimed that their states' system of financing public schools violated their Fourteenth Amendment rights to equal protection and due process because of the wide disparity created between districts within each state for expenditures per student.<sup>63</sup> Both District Courts in *McInnis* and *Burrus* ruled against the plaintiffs, with the *Burrus* court agreeing with the decision of the *McInnis* court. Minorini and Sugarman described the problem with the plaintiffs' argument:

A central difficulty with the needs-based claim existed, however. How much spending does any child, or class of children, need? If need implies a level of school spending necessary to achieve some sort of educational outcome standard, then exactly what outcome? And if need is not about outcomes, what does it involve that a court could

address? . . . the problem lay in identifying an acceptable constitutional principle for courts to announce that contained the certainty and clarity that seemed necessary. . . before the claimants had any hopes of winning an equal protection case.<sup>64</sup>

Though the initial steps toward finance equalization failed, legal scholars and finance theorist were undaunted in the need to change the current system of inequity within the states. The search for a federal solution to finance inequity would continue into the next decade, but the hope that the arguments of equal protection and fundamental right would prove both frustrating and fruitful to education finance reformers. Frustration occurred when the use of the federal Constitution for establishing equality in education was defeated, and the successive attempts in the state courts in the next decade met with mixed results because none of the strategies applied provided incontrovertible arguments to gain a favorable ruling in all of the state supreme courts.<sup>65</sup>

### **Modern Education Finance Litigation: Three Waves of Dissent**

Although plaintiffs lost in *McInnis* and *Burrus*, education theorists like Coons, Clune and Sugarman continued to apply the principle of equal educational opportunity established in *Brown* and sought to develop legal arguments that would secure that right for all students.<sup>66</sup> The ensuing court battles had initially started in the state courts using the 1960s argument of equal protection under the Fourteenth Amendment of the Constitution. However, the early losses led litigants to choose a different strategy that would generate successful lawsuits for plaintiffs. The period of education finance litigation over the last three decades had been discussed by scholars as occurring in three distinct waves of court activity.<sup>67</sup> An understanding of these three periods of court cases

would help to clarify the evolution of education finance research from studying equity to including adequacy as a major area of concern. Except for the early work of education finance scholars prior to 1970,<sup>68</sup> many of the research on education finance had been compiled as a result of court cases rather than leading in the creation of new theoretical constructs for litigants to use. Thus, litigation had a tremendous impact on education finance research, and reviewing the shifting emphasis in education litigation cases from equity to adequacy provided a focus for finance litigation researchers for defining both equity and adequacy.

### **The first wave: 1971-1973**

What characterized the first wave of litigation was the emphasis placed on the equal protection clause of the Fourteenth Amendment of the United States Constitution.<sup>69</sup> Also, the first wave abandoned the previous needs-based concept of earlier cases in favor of the principle of fiscal neutrality developed by Coons, Clune, and Sugarman.<sup>70</sup> The first wave of modern finance litigation began with the California case of *Serrano v. Priest*<sup>71</sup> (*Serrano I*) in 1971.<sup>72</sup>

*Serrano I* was also unique from the earlier cases of *McInnis* and *Burrus* because it was the first case to win at the state supreme court level and the was the first to apply the concept of fiscal neutrality. The California Supreme Court ruled in favor of the plaintiffs in *Serrano I* and held that the state s system of financing public schools violated both the federal and state equal protection guarantees because it made the child s educational opportunities dependent on the wealth of the child s school district.<sup>73</sup> What was important in *Serrano I* was that the court declared the system of financing public

schools unconstitutional according to both the federal and state constitutions, and the state constitutional guarantee would play a crucial role during the next wave of reform litigation. However, with the success of *Serrano I*, a plethora of state finance systems were challenged in various states.<sup>74</sup>

*Serrano I* set out causes of action. First, plaintiffs stated that the current system of financing education, relying on the taxing of local property failed to meet the requirements of the equal protection clause of the Fourteenth Amendment of the United States Constitution and the California Constitution.<sup>75</sup> The second cause of action stated that because of the finance scheme, plaintiffs were forced to pay more taxes than taxpayers in the other districts.<sup>76</sup> Third, because of the cumulative allegations mentioned in the first two causes, the plaintiffs felt that the current system of financing education was invalid and unconstitutional based on the Fourteenth Amendment of the United States Constitution and the California Constitution.<sup>77</sup> In effect, the plaintiffs claimed that their children had been denied equal protection of the law, and that they had also been deprived of a fundamental right to an education.<sup>78</sup> On appeal, the plaintiffs in *Serrano I* further cited that the system of financing education in California violated article IX, section 5 of the California Constitution.<sup>79</sup> The California Supreme Court ruled favorably for the plaintiffs in the first three arguments but ruled against the plaintiffs in the last argument. It ruled that the California Constitution did not require an equal level of spending between districts, but that it only required a uniform purpose, a system that is applicable to all the common schools within the state.<sup>80</sup> However, in the other three arguments, the court found in favor of the plaintiffs, and in essence, found education to be

a fundamental right for all citizens and was guaranteed equal protection under the constitutions of the United States and California.<sup>81</sup> Further, *Serrano I* accepted the argument that the condition of a child's education must be exclusive of the wealth of the district that he or she resides.<sup>82</sup> The success of *Serrano I* led to the filing of other lawsuits using the equal protection clause of the United States Constitution.<sup>83</sup>

*Serrano I* was historic because it was the first case where plaintiffs succeeded on the state supreme court level, but it also had far-reaching impact in the area of litigation and education finance research. Thompson, Wood and Honeyman posit that *Serrano I* impacted school finance reform in five ways. First, it proved that equal educational opportunity could be applied to the area of finance. Second, it illustrated that states could be vulnerable to constitutional attack. Third, it established the claims of that education was a fundamental interest in society, wealth was a suspect class and the right to an education was protected under a state's equal protection clause.<sup>84</sup> Thus, for litigants *Serrano I* provided a winnable argument for state courts to consider, and it illustrated that states can hold a stricter standard in their constitutions. Also, because the nature of the complaint in *Serrano I* derived from unequal spending for education across the state, education researchers began to develop ways to define this concept of unequal spending, leading to the development of equity theory research,<sup>85</sup> and the lasting impact of the first wave of litigation was that states had to reevaluate their funding programs or face continued litigation.<sup>86</sup>

The first wave ended with the Supreme Court decision of *San Antonio Independent School District v. Rodriguez*.<sup>87</sup> *Rodriguez* was a class action case brought on

behalf school children of poor families residing in school districts that had a low property tax base. The plaintiffs challenged the Texas system of school funding, which utilized local property taxes as a base of funding. In the District court case, the plaintiffs alleged that the Texas system of school finance was unconstitutional under the Fourteenth Amendment because it deprived the poor of equal protection of the law.<sup>88</sup> The plaintiffs sought for the court to acknowledge that they were a suspect class because they were poor; thus, the court would be constrained to rule in their favor and review the Texas system as unconstitutional under judicial strict scrutiny.<sup>89</sup> The district court ruled in favor of the plaintiffs<sup>90</sup> and an appeal was made to the United States Supreme Court.

On appeal, the plaintiffs argued that the Texas system of financing education discriminated against the poor, denying a right to an education.<sup>91</sup> Plaintiffs wanted the Court to declare wealth to be a suspect class and education to be a fundamental right at the highest level, which would have forced other courts to apply a strict scrutiny test to educational services within the various states.<sup>92</sup> The Supreme Court overturned the lower courts ruling and held that the case was inappropriate to apply the judicial strict scrutiny test,<sup>93</sup> and that the system of funding education in the state of Texas was rational because it assured a basic education for every child while it encouraged local participation and control of school districts. Since the local control and participation was a legitimate state purpose, the Texas system did not violate the Fourteenth Amendment.<sup>94</sup> Also important, the Court held that the Fourteenth Amendment did not apply to the case because the Texas system did not negatively affect a suspect class.<sup>95</sup> Further, the Court held that the Texas system did not interfere with the exercise of a fundamental right or

liberty since it could not be demonstrated in the lawsuit that the system failed to provide basic minimal educational skills.<sup>96</sup> *Rodriguez* was a seeming death blow to the education finance litigation movement, but it only closed the door to Federal intervention in the funding crisis in the states.<sup>97</sup> However, the success of *Serrano I* provided a new perspective for fundamentality and equal protection.<sup>98</sup> The next wave of litigation took a decidedly different route through the state court systems, focusing attention on the equal protection and education clauses of the various state constitutions.<sup>99</sup>

### **The second wave: 1973-1989**

With the decision of *Rodriguez* and *Serrano I*, plaintiffs began to litigate utilizing the various states' constitutions, which could offer greater rights to its citizens beyond the federal rights.<sup>100</sup> This concept, matched by an increasing reliance on state constitutions,<sup>101</sup> ushered in the next wave of education finance litigation. *Robinson v. Cahill*<sup>102</sup> (*Robinson I*) was one of the first cases to decide on the constitutionality of the state's education finance formula utilizing a greater reliance on the belief that the state constitution could provide greater benefits to its citizens than the federal constitution.<sup>103</sup> The New Jersey Supreme Court had declared that the system of financing public education in the state violated the education clause of the state's constitution. The success of *Robinson I* initiated the second wave of litigation reform.<sup>104</sup>

The cases under the second wave of litigation applied two distinct provisions under the state constitutions. The first provision dealt with the state's education clause, which had some minimum guarantees for a free public school system.<sup>105</sup> The second used the equal protection clause of the states or some form of equality guaranty provision.<sup>106</sup>

Most second wave cases applied the equal protection clauses of the states' constitutions to the arguments presented by plaintiffs.<sup>107</sup>

However, the second wave of education finance litigation reform produced a Pyrrhic victory for education reformers because decisions of the various state cases resulted in many different interpretations,<sup>108</sup> and the defeats outweighed victories in the state supreme courts during the second wave of litigation.<sup>109</sup> One possible reason for the demise of the second wave was the state courts' concerns over local control and separation of powers as well as the courts' concerns over institutional competency.<sup>110</sup> Other problems arose with the difficult task of relating a meaning of equity in the context of education funding, and the problem may have been too large within the emotional context of education.<sup>111</sup>

The second wave of finance litigation provided researchers with a profusion of decisions and analyses from which to further refine the theories for defining equity. It was also a period of application of these theories into the research literature.<sup>112</sup> However, in the judicial arena, the second wave of litigation did not provide the clear guidance for plaintiffs that would lead to increased financing for education because the second wave cases did not provide the successful decisions that would have given the precedent needed to advance reform efforts. Further refinement of the plaintiffs' arguments would continue and eventually usher in a new era of litigation.

### **The third wave: 1989-present**

As the second wave of litigation reform illustrated, the urgency of reform had not abated since the decision of *Serrano I*, and plaintiffs continued to file complaints with



varying degrees of success. However, the method of argument had changed with the onset of the third wave of litigation in 1989. Previously, the plaintiffs had argued that education was inequitable based on either an equal protection right or an educational guarantee of a state's constitution. During the third wave of reform, litigants built arguments exclusively on the state constitutions' education clauses, focusing the arguments on the states' specific obligations in providing for public education.<sup>113</sup> The arguments moved from equal treatment regarding educational resources toward arguments for some type of substantive right to educational quality.<sup>114</sup> Thus, the standard of adequacy had become a factor in litigation, and it had made an important impact in the states of Montana,<sup>115</sup> Kentucky,<sup>116</sup> and Texas,<sup>117</sup> where the supreme courts of all three states ruled that the states' systems for financing education were unconstitutional because they failed to provide a level of funding where each student was guaranteed a sufficient educational experience.<sup>118</sup>

Adequacy had a different concept in school finance litigation because it shifted the focus away from financial inequalities to a focus on providing each student with enough funding to guarantee a desired level of educational outcomes.<sup>119</sup> Also, adequacy arguments remolded the United States Supreme Court's decisions in *Brown* and *Rodriguez* to develop an interpretation of state constitutions that established a state constitutional entitlement to an adequate level of education.<sup>120</sup> Enrich posits four basic values to adequacy arguments:

- 1) Adequacy arguments were derived from an explicit and straightforward textual source in the education clauses of state constitutions.
- 2) Adequacy arguments appealed to norms of fairness and opportunity.

- 3) Adequacy arguments were less threatening because they were confined to a single field of governmental activity.
- 4) Adequacy arguments are better positioned to rebuff objections regarding conflicting state constitutional provisions of local school taxation or local control.<sup>121</sup>

Thus, adequacy was an easier concept for courts to understand. In fact, adequacy can be considered a child-based concept, which would make the argument for additional funding easier for courts to interpret if the argument were framed in the context of the a child s inability to achieve a level of educational quality because of a deficiency in spending.<sup>122</sup> Adequacy as an argument in education finance litigation had couched the earlier needs-based approach into an argument that courts could use to determine whether adequate levels of educational resources were being provided for students, and whether the revisions by the legislative bodies fulfilled the adequacy standard.<sup>123</sup> Thus, adequacy had been an argument in many cases during the 1990s.<sup>124</sup>

However, the third wave of litigation did not produce the definitive argument for plaintiffs, hoping to change their state s method of distributing resources for education, because not all court ruled in favor of the adequacy argument.<sup>125</sup> One problem for adequacy was some courts difficulty with finding a definition of adequacy and the separation of powers principle of government.<sup>126</sup> Another problem was the courts' unwillingness to equate disparity with inadequacy.<sup>127</sup> Finally, third wave, adequacy, suits may have invited a form of judicial activism in which courts were unwilling to participate, and some courts questioned their competency to determine what an adequate level of education might mean.<sup>128</sup> This growing concern may have started the third wave on a similar decline as its predecessors.

### The future of finance reform: A fourth wave?

The ambiguity of the third wave's success was evidenced by the cases held both for and against an adequacy standard. The growing discontent of courts had also challenged the third wave's efficacy as a true reform tool. However, the cause of education finance reform continued in the 1990s, and it looked to be an important issue in the Twenty-First Century as well. The problem facing reform advocates was developing a theory that courts could agree with. Hence, a fourth wave of school finance reform might evolve in the Twenty-First Century.

The Connecticut case of *Sheff v. O'Neill*<sup>129</sup> may have provided a legal argument that distinct from third wave cases.<sup>130</sup> The *Sheff* court ruled the Connecticut system of funding public schools as unconstitutional based on different assumptions other than adequacy. The *Sheff* court ruled in favor of the plaintiffs based on a coalescing of the state's education and desegregation clauses.<sup>131</sup> In effect, the court created an affirmative constitutional right to education.<sup>132</sup>

Whether *Sheff* created a new wave of reform efforts will probably become evident in later cases. What was evident was the unwillingness of the issue of fairness in educational spending disappear. Faced with the numerous defeats during the second and third waves of litigation, reformers maintained a steady stream of litigation that would go into the Twenty-First Century. This tenacity attested to the reform efforts ensconced presence in the study of education finance.

The brief analysis of the three waves of education finance litigation presented an overview of the frenzied research activity relating to education finance in the latter half of

the Twentieth Century. Prior to the modern era of litigation, research in the area of equity and adequacy in education finance had been scarce with the majority of research efforts occurring since the 1960s. The reason for the paucity of research into the topic of equity and adequacy prior to the modern period of litigation could only be hypothesized. However, the impact that litigation had on education finance research was clearly evident. Initially, scholars like Coons, Clune and Sugarman sought to develop a new paradigm of thinking for education researchers. However, once finance litigation became entrenched into the world of education, researchers began to provide definitive answers to questions being raised by the plaintiffs and courts. Thus, modern education finance research had benefited from litigation and was influenced from it.

Finally, another purpose for reviewing the modern education finance litigation period was to identify the primary reason for litigation, which is to increase funding for students who reside in poor districts. Equity and adequacy studies had become the methods of codifying the intent of plaintiffs. However, the intent of litigants was to increase state funding for poor districts to equalize them to the spending levels of the richer districts not to pull funding from one district to another, which was some states response to equity challenges.<sup>133</sup> Therefore, research should include studies on the impact of litigation on resources. However, the breadth of education finance research, during the modern period of finance litigation, had focused mainly on defining equity (with adequacy research developing during the 1990s) and not on correlating litigation to resources or spending.

## Background of Education Finance Study in the United States

### Early Twentieth Century Education Finance Studies

The earliest work that dealt with the importance of education finance developed through the efforts of Elwood Cubberley.<sup>134</sup> Cubberley was the first to discuss and develop the concept of equalization of education funding for schools. He advocated equal spending for all children in a state, and that school districts should spend more than the minimal amount at the time. Cubberly proposed that

Theoretically[,] all children of the state are equally important and are entitle to have the same advantages; practically[,] this can never be quite true. The duty of the state is to secure for all as high a minimum of good instruction as is possible, but not to reduce all to this minimum; to equalize the advantages to all is nearly as can be done with the resources at hand; to place a premium on those local efforts which will enable communities to rise above the legal minimum as far as possible; and to encourage communities to extend their educational energies to new and desirable undertakings.<sup>135</sup>

Cubberly recognized that the property tax method of financing local schools created wide disparities in funding sources between rich districts and poor districts. His solution was for states to develop a flat grant type of funding formula, which would assure an equitable distribution of funds. The funding for this state grant would come from a state tax on property, where the people of the whole state unite for a common result.<sup>136</sup>

Refinement of Cubberley s theories began in the early 1920s with the work of Harlan Updegraff.<sup>137</sup> Updegraff developed a financing concept that varied state support according to a local district s ability to raise money, known as a variable level foundation program. His program sought to provide a minimum level of educational spending for

every child regardless of its location within the state. Updegraff also advanced another concept to the field of education finance, the financing of education based on a teacher unit. A teacher unit is the concept that for a set number of students, a district would receive funding for the cost of an average teacher.<sup>138</sup>

The effort of Strayer and Haig,<sup>139</sup> also in the early 1920s, developed a series of finance formulas that attempted to advance the goals of ensuring equal education facilities for children while maintaining a system of taxation considered taxpayer equity as well.<sup>140</sup> Strayer's and Haig's formulas theoretically created a funding program where some districts would not receive funding from the state because of the larger amounts of money they could generate, and that the state would provide a minimum amount of funding for uniformity. Their proposed program was summarized as follows:

1. A local school tax in support of the satisfactory minimum offering would be levied in each district at a rate which would provide the necessary funds for that purpose in the richest district.
2. This richest district then might raise all of its school money by means of the local tax, assuming that a satisfactory tax, capable of being locally administered, could be devised.
3. Every other district could be permitted to levy a local tax at the same rate and apply the proceeds toward the costs of schools, but--
4. Since the rate is uniform, this tax would be sufficient to meet the costs only in the richest districts and the deficiencies would be made up by the state subventions.<sup>141</sup>

A third component of Strayer's and Haig's formulas included the flexibility of local districts raising additional funding if desired.<sup>142</sup>

Another interesting development that came out of Cubberley's and Strayer's and Haig's research was the divisive issue of rewarding for effort.<sup>143</sup> Cubberley believed that a state should reward a district for extra effort, while Strayer and Haig believed that this

practice would create greater inequities in funding. Arguments for both positions have ensued through the years with little consensus. Regardless of the debate, education finance had become a topic of interest for education researchers and attempts to discover the best methods of improving funding and educational opportunity were consistently appearing in the literature.<sup>144</sup>

In 1930, Henry Morrison<sup>145</sup> proposed a controversially different method of school funding where all school districts would be abolished and the reliance on property tax for educational funding would be abolished in favor of a full-state funding program. Morrison's plan called for a state income tax to provide the needed revenues for schools, and that control over finances and operations would be centrally located in the state. Morrison's plan was controversial because it radically promoted a funding scheme that would take education out of local control, which had historically been supported since colonial times. To date, only one state, Hawaii, has implemented a full-state funding program<sup>146</sup> though other states have come close to creating a similar model through their taxing systems.<sup>147</sup>

Paul Mort<sup>148</sup> further refined the formulas of Strayer and Haig, and these formulas eventually became known as the Strayer-Haig-Mort formulas.<sup>149</sup> Mort's formulas revealed his belief that every child should receive the same educational opportunity. He developed the idea of using a weighted pupil variable in education formulas. This concept applied student need into the formula, whereby a student with special needs would receive more funding than a student without any special needs. Mort's concept of a weighted student was an early attempt at considering vertical equity. Vertical equity is the theoretical idea

that unequals should be treated unequally.<sup>150</sup> Pupil weighting had been a popular method in various state formulas<sup>151</sup> that attempted to consider vertical adjustments, and a common alternative had been the use of categorical aids.<sup>152</sup> However, one drawback to Mort's proposal is that there must be a determination of who is considered eligible, and hence, value judgments must be made,<sup>153</sup> which are often politically unpalatable.

The overriding concern of early education finance researchers was the same as their posterity, equality of educational opportunity. As early as 1872, districts and states began to see a developing inequality in educational resources,<sup>154</sup> and as early as 1938, funding disparities had achieved ratios of one hundred to one in per-child evaluation.<sup>155</sup> These early researchers began to develop a systematic method of viewing education finance inequalities, and they provided later researchers a base from which to build the theories of equity.

The ensuing decades of research witnessed a higher quality in education finance research due to increased access to data and easier circulation of the results, even though utilization on the part of legislatures was slow in developing.<sup>156</sup> Also, the ensuing research began to focus on the relationship between resource and achievement,<sup>157</sup> which laid the foundation for the finance litigation of the early 1970s through the 1990s. Though the work of the early researchers laid the groundwork for much of the discussion of resource and taxpayer equity, major work leading to equity cases of the 1970s and beyond began in the 1960s and early 1970s.



## Education Finance Research in the 1960s and Early 1970s Prior to Modern Finance Litigation

Since modern education finance litigation began with the California case of *Serrano I*,<sup>158</sup> *Serrano I* also gave rise to transformation in education finance research. Scholars began to state finance systems from an ex post perspective rather than from primarily an ex ante one.<sup>159</sup> Also, much of the research in the 1960s and early 1970s laid the legal background for the arguments debated in the *Serrano I* decision. Researchers and activists helped to conceptualize the need to improve spending in the fifty states. These researchers viewed, ex ante, the current system of financing public education with local property taxes as inherently flawed because of the disparity in funding distributions throughout the states that it created. During the modern era of education finance litigation, the focus of the research changed from creating an equitable education finance formula to interpreting the effects current formulas had on education spending.

Although equity advocates faced certain obstacles during this time, they continued to pursue the issue of providing all school children with an equal educational opportunity. However, equity analysts faced a major challenge to the veracity of their research during this period. During the 1960s the question of whether resources and educational achievement were correlated would become a challenge to equity theorists because the lack of substantive correlational data that illustrated a relationship between spending and educational achievement would distress equity advocates for many years, and production function researchers would continue to refute the simplistic notion that more funding was required to fix the problems in education. Although equity and adequacy had been hotly

debated over the years, the relationship between resources and achievement had not been without extensive representation within the literature.

The first major work of the 1960s was done by James Coleman and associates. His *Equality of Educational Opportunity*, known as the Coleman Report, painted a negative relationship between education and resources.<sup>160</sup> The Coleman Report concluded that the social economic indicators played a stronger role in academic achievement than did school-based indicators of achievement like curriculum, teaching style, or facilities. A study produced in 1972 by Christopher Jencks<sup>161</sup> and associates reinforced the earlier conclusion of the Coleman Report. Jencks et al s study concluded that the inequalities between adults should be addressed by primarily reducing the disparity itself rather than secondarily through changing personal characteristics through education.<sup>162</sup> These conclusions launched a wave of protest by education researchers and reformers, which resulted in attempts to disprove the findings, instigating a movement of research that dealt with the effectiveness of public schools,<sup>163</sup> and subsequently followed by the production function studies of the 1980s and 1990s.<sup>164</sup> Though the debate between equity analyst and production function analyst continued, the strong correlation between revenues and student outcomes remained elusive,<sup>165</sup> which may have accounted for the focus of scholars to study inputs and processes rather than output concepts.<sup>166</sup>

Arthur Wise discussed the wide disparity of spending between school districts within the states.<sup>167</sup> Wise was the first to argue that public education was a fundamental right of all citizens, and that this right was protected by the equal protection clause of the Constitution. Hence, the distribution of funds within a state must be equalized unless

there is a compelling state interest to show otherwise.<sup>168</sup> Wise also proposed a school finance distribution formula modeled after the one man-one vote principle of the reapportionment cases of the 1960s. Wise's theory proffered an equal dollar for dollar distribution formula, which would require an end to unequal spending in the districts. Wise's theory of equity had come to be known as horizontal equity<sup>169</sup> by researchers. Accomplishing true horizontal equity can pose some problems for reformers when confronted with the ideas associated with taxpayer equity<sup>170</sup> or with student equity when asking what to measure.<sup>171</sup> However, the early cases of school reform focused on equity of spending across all districts in the state.

Legal scholars also had a part in the conceptualizing of school equity and adequacy by developing theories that would play a prominent role in education finance litigation and would also impact the further research of education finance principles. Horowitz and Neitring developed the principle of geographic uniformity, arguing that school spending could not vary within a state because of geographic boundaries alone.<sup>172</sup> Further, Horowitz's and Neitring's theory would encourage states to spend more on special education students regardless of where they were concentrated. Hence, if they were found to be predominantly in urban areas, then spending could be increased in those areas without inequity being created. This is a primary concept in vertical equity studies. However, Horowitz's and Neitring's theory only encouraged divergent spending and did not mandate it, which early litigants sought.<sup>173</sup> This group of legal-aid lawyers sought to litigate the issue of equity based on a need-based constitutional claim of equality of opportunity that was postulated in 1970 by John Coons and William Clune and Stephen

Sugarman.<sup>174</sup> Coons, Clune and Sugarman developed a theory that combined a concern for poverty with the idea that education was a constitutional right.<sup>175</sup> Their theory, known as Proposition I, focused on the disparity of wealth between the districts of a state and promoted a theory of fiscal neutrality where the quality of education would not be a function of district wealth but the wealth of the state.<sup>176</sup> The basic principle of Proposition I was that resources would not be limited to poor districts because they could not afford to provide them. Proposition I proposed that states equalize spending across districts for equal effort by taxpayers. To effectively generate this equality of resources, Coons, Clune and Sugarman proposed the development of financing formula that they called power equalization,<sup>177</sup> which evolved into district power equalization (DPE).<sup>178</sup> To Coons, Clune and Sugarman, power equalization provided the basic requirements of equalization that any rights of subunits of the state to be relatively wealthy for educational purposes is denied, and that each unit should be free to choose to share in the state's wealth by deciding how hard to tax themselves.<sup>179</sup>

The legal theory developed by Coons, Clune and Sugarman was instrumental in the decisions of the California Supreme Court case in *Serrano I*<sup>180</sup> and the lower Texas Federal Court case of *Rodriguez v. San Antonio Independent School District*.<sup>181</sup> The success of Proposition I as a legal theory led to its inclusion in education finance research that attempted to define the effects on equity of state funding formulas rather than impact litigation had on improving resources into the funding formulas.<sup>182</sup>

### Modern Education Finance Research: 1970s to Present

Although the focus of modern research in education finance was mainly on the effects finance formulas had on spending between districts within a state, education research took a slight detour in the mid 1980s after the publication of *A Nation at Risk*,<sup>183</sup> where the research in education focused on the reform of school curriculum and instruction. Education finance studies once again returned to concentrating on the relationship between resources and achievement. In the later 1980s, equity and achievement maintained a balanced perspective in education finance.<sup>184</sup> The relationship between outcomes and equity had led to an increased awareness of adequacy as a form of educational analysis.<sup>185</sup> Today, there is an increased awareness on adequacy as a major concern in education finance.<sup>186</sup>

In light of the litigation of the 1970s, school finance researchers focused on the outcomes of school finance formulas. Generally, many scholars emphasized the effects that litigation had on the individual states.<sup>187</sup> The early litigation cases had crossed over the desegregation lines of *Plessy* and *Brown* to address the issue of equality for all children regardless of race or social position. Thus, as the issue of equality began to affect a broader range of students, more scholars became interested in investigating the impact this new movement had on the distribution of education dollars.

Other early researchers focused attention on the developing construct of finance equity.<sup>188</sup> Though a uniform method of measuring equity distribution had been necessary since the inception of state financing plans, there had never been a systematic plan implemented until the development of education finance litigation.<sup>189</sup> Since the 1970s

began the systematic study of school finance equity, descriptions of what equity means began to develop in the later part of the decade. What the 1970s research produced was a base of equity studies that later years could use to refine.

Thomas Johns and Dexter Magers<sup>190</sup> provided a review of equity methodology in the early 1970s. They found that the early efforts at determining equity did not provide a uniform method of assessment and proposed a model of equity assessment that could be applied nationally. Their analysis of an effective method of studying equity within a state's system of finance required a simple concept that required a modest amount of data that should measure the broadest set of conditions as possible and ignore the extremes.<sup>191</sup> Their model focused evaluation on three areas: consideration of the affected class (pupils or taxpayers), the equity condition to be measured (resource differentials, resource sufficiency, or wealth disparity), and the measures of equity to be utilized in the study (relative mean deviation, percent below national average, or percent of revenue that is wealth neutral). Taxpayer equity studies would focus on wealth disparity and percent of revenue that is wealth neutral, while pupil equity studies would focus on resource differentials, which would utilize disparity in resources, or resource sufficiency, which would focus on measures of adequacy.

Jay Moskowitz and Joel Sherman<sup>192</sup> analyzed the use of data in equity analysis in the 1970s. They found that property wealth, expenditures, state aid, and equalized tax rates by districts were four major types of data needed for empirical analysis in the early fiscal equity or neutrality cases. Cases which evidenced the effects of wealth-based disparities on educational services required expenditures by function and staffing patterns

by service (special education, guidance, library, administration, et al.). Data from state sources were often used over local sources in order to provide uniformity in the debates and strengthen the reliability of these data. Finally, the process of manipulating data were related to the purpose of the litigation.<sup>193</sup> Moskowitz and Sherman hypothesized that the use of statistical procedures like correlation and regression analysis would be used more frequently by litigants and such has been the case.<sup>194</sup>

Also, Robert Berne and Leanna Stiefel had begun to develop their description of equity analysis in 1979,<sup>195</sup> which laid the foundation for their landmark work in 1984, *The Measurement of Equity in School Finance: Conceptual, Methodological and Empirical Dimensions*,<sup>196</sup> which became the dominant resource for statistical equity analysis. *Measurement in Equity* provided in-depth explanations of the equity statistics used in education finance studies. The book was designed to review alternative ways for equity in school finance to be conceptualized and empirically measured, and it emphasized the different valuations deeply-seated within those alternative measures.<sup>197</sup>

In their earlier work in 1979, Berne and Stiefel provided a framework for describing equity through answering four questions:

1. Equity for whom? Who are the different groups for whom school finance systems should be equitable?
2. Equity of what? What services, resources or more generally, objects, should be distributed fairly among these groups?
3. What are the different equity principles that can be used to determine whether the distribution is fair?
4. How should the degree of equity be measured?<sup>198</sup>

Berne and Stiefel covered both equity for taxpayers and children in their discussion of the first question and applied the remaining three questions to taxpayers and children separately because the two groups incorporated different equity concerns.

When the object is measured concerning child equity, Berne and Stiefel supported viewing equity from two categories of objects, inputs and outputs. Inputs relate to those resources that have historically combined to produce education, such as actual dollars, adjusted dollars, or physical resources. The outputs are the results of schooling, skills, et al., that are developed from the education process., which may included both school and non-school variables. Future societal factors may also be incorporated into the equity study.<sup>199</sup>

In discussing which principles to utilize in equity studies, Berne and Stiefel described three principal perspectives for studying equity: horizontal equity, the equal treatment of equals; vertical equity, the unequal treatment of unequals; and the equal opportunity principle, no discrimination of children based on race, sex, or wealth. Further, they affirmed that the selection of which equity principles to study was related to the differences viewed among children: i.e., if there were no differences, then horizontal equity would be investigated; if there were differences, then vertical equity would apply.<sup>200</sup>

If the scholar wanted to know how to measure equity, Berne and Stiefel related that decisions should be made between two broad classes of measures, dispersion-types and relationship-types. Either decision required a value decision, which Berne and Stiefel believed could be addressed in the following list of questions:



1. Are all children taken into account in the measure?
2. Does that measure always show an improvement when revenues are transferred from one child to another lower in the distribution, without reversing the ranking of the children?
3. Does the measure always change when the revenues of each child are increased by a constant proportional amount?
4. Does the measure always change when the revenues of each child are increased by a constant absolute amount?
5. Does the measure record dollar changes at different levels of the distribution in the same way?
6. Is the mean used as a basis of comparison?
7. Is the median used as a basis of comparisons?
8. Are all levels compared to one another as a basis for comparison?<sup>201</sup>

The purpose for addressing the questions before beginning the measurements of equity in any study, Berne and Stiefel opined, was that different measures can lead to different conclusions.<sup>202</sup>

When the taxpayer becomes the focus of the equity study, Berne and Stiefel reasoned that the three questions of which object to use, how are the equity principles defined, and how are the equity principles measured also applied. The objects included outflows, taxes, or inflows, educational services, considered along with the outflows. The decision was complicated by the types of taxes paid by the taxpayer. Outflows usually would concern attempts to decipher whether the objects observed would be incidence of taxes on individual taxpaying units or relate to the ability to pay concept, who would bear the burden. If inflows were considered with outflows, then the objects considered for children, combined with tax incidence, would become a second object of concern for the scholars consideration of the taxpayer's perspective.<sup>203</sup>

Berne and Stiefel also believed that taxpayer equity should also consider which object to measure and which principles should be utilized. The object measured in the

taxpayer approach by the scholar was a choice between a tax only approach or a service inflow minus the tax outflow approach. The decision would influence the equity principles utilized by the scholar.<sup>204</sup> The principles of horizontal and vertical equity applied when scholars differentiated taxpayers according to ability to pay. Horizontal equity related to equal tax incidence of taxpayers with equal ability to pay where vertical equity observed the variations in tax incidence related to taxpayers of different levels of ability. Both measures of equity could be viewed within or between districts.<sup>205</sup>

The measurement of equity was equally complex and related to which equity principle was chosen. If horizontal equity were studied, the measures utilized included indexes of incidence and equity or correlation, slopes, or elasticities. If vertical equity were studied, then equity was defined by tables of incidence by ability to pay, usually comparing net benefits and property wealth or income.<sup>206</sup>

Besides scholars' attempts to define equity and equity measurement instruments, other scholars had measured the effect of finance reform on state equity and found little encouragement that reform had any positive long-lasting impact. The study by Lawrence Brown for the Federal government illustrated little results in equity gains for reform states.<sup>207</sup> Also, Carroll, Cox and Lisowski analyzed five reform states before and after reform efforts had occurred and found little improvement in equity for students, but had found that reform efforts had led to a more equitable distribution of tax rates.<sup>208</sup> Another study completed by Hickrod, Chaudhari, and Hubbard in Illinois from 1973 to 1981 demonstrated a similar result to those studies done by Brown and Carroll et al. Hickrod et al., found that disparity between districts had not improved in Illinois, but that wealth

neutrality had been achieved to some degree.<sup>209</sup> Though these studies presented an unflattering outcome of reform efforts, they do illustrate that equity studies required additional refinements.

During the first decade of education finance reform, the emphasis on equity research continued to focus on describing the effect litigation had on equity rather than on increased resources. The predominant theory during the 1970s was the district power equalization formula (DPS) developed by Coons, Clune and Sugarman.<sup>210</sup> Though education finance scholars had led the research into resource and spending equity in education, economists had provided research that helped to quantify the feasibility of district power equalization formulas (DPE) in the area of equity and neutrality. Feldstien's research illustrated a positive impact toward equity because of DPEs<sup>211</sup> while other researchers have not found as strong a relationship.<sup>212</sup> Peterson sought to record the relationship between wealth and taxation of property for education<sup>213</sup> while Barro sought to express the relationship of finance to the spending behavior of the districts.<sup>214</sup> Grubb and Michelson observed that the effects of reforms on property values and prices and grant levels raised two complications: property values are affected by expenditures and locally raised revenues, and both state and local taxes also determine school district expenditures. Their research described the relationship between revenues and local property tax rates, recognizing that several local variables were necessary for describing that relationship.<sup>215</sup> The work of Robert Inman<sup>216</sup> further contributed to an understanding of how DPE effects expenditure levels. Through simulations using data from New York City school district, Inman illustrated that expenditures increase initially in originally

depressed communities, but then these communities tax base rises, and the result is a decrease in school expenditures.

The work of these scholars during the first decade of modern education litigation provided a cornerstone of research that later scholars used and refined. Though the ongoing education finance litigation through the next two decades produced a plethora of research, the findings and research methods improved little in the next decade.<sup>217</sup>

With the commencement of a new decade, education finance researchers in the 1980s began to review educational reform more from an ex post perspective rather than the ex ante approach of the earlier scholars who focused on the development of formulas. The research of the 1980s focused on the dispersion of money from the states' education funding formulas. Some observed the effects of formulas on distribution of resources over the years,<sup>218</sup> while others measured the equity of state distributions of funds after litigation had occurred.<sup>219</sup> There were attempts to review reform from a national perspective<sup>220</sup> while some research focused on the impact of Federal assistance on equity as a response to *A Nation at Risk*.<sup>221</sup> The conclusion of most scholars was that although reform had an impact on state funding, in that there was a sense of upheaval and movement, very little improvement in the inequity in many states occurred. Thus, little actual gain had occurred through twenty years of litigation. A study by Schwartz and Moskowitz<sup>222</sup> illustrated the vacillating effect that finance reform had on equity. Their study showed that some of the gains in the 1970s were lost during the early years of the 1980s. The early 1980s did show some small gains in the states, but the overall progress of litigation reform was minimal.

Though litigation continued throughout the 1980s, and researchers continued to study equity in state distribution plans, the 1980s also saw a decline in the refinement of equity research.<sup>223</sup> Stephen Barro equated the research in this decade to nothing more than a status quo body of research.<sup>224</sup> He interpreted the body of research done in the 1980s as effecting very little improvement in equity analysis during this decade. Many scholars were basically reporting on the states based on the equity analysis techniques created during the 1970s, but no one had begun to refine the measurement of equity.<sup>225</sup> Even Berne s and Stiefel s consummate book, *The Measurement of Equity in School Finance*,<sup>226</sup> only explained the then current equity measurements and methodologies without adding any novel methodological measurements, though it did provide a comprehensive review of the then current methodologies and an analysis of their weaknesses and also provided possible solutions that could aid in improving future assessments.<sup>227</sup> Another positive to their book was their descriptions of various equity terms. The comprehensives of their book provided a culminating explanation of the type of equity research that was conducted by scholars in the field.

One reason for the decline in the study of equity may have been related to the switch in emphasis from equity to quality caused by the 1983 publication of *A Nation At Risk*<sup>228</sup> by the National Commission on Excellence in Education.<sup>229</sup> With the publication of *A Nation At Risk* and the scarcity of funds due to the recession in the early 1980s, the country shifted its focus from equity to other issues like standards, drop out prevention, graduation requirements, teacher improvement and other factors.<sup>230</sup> *A Nation At Risk* had also started a national movement toward excellence and was followed by a host of other

reports on the state of education and how to improve it.<sup>231</sup> Also, legislation during this period produced more spending for schools, but did little in the way of improving equity, and may have exacerbated the problem in some states.<sup>232</sup> Overall, the reform movement during the 1980s had the following four characteristics: 1) It relied heavily on standard setting and regulations; 2) It focused more on quality than equity; 3) The majority of policy was made at the state and local levels; and 4) The major target of reform were the secondary schools. as the major tools of reform.<sup>233</sup> The 1980s was a decade of turmoil and unrest for education reform. However, little was accomplished in the area of equity reform, but that would change with the advent of the next decade.

The 1990s saw the development of a new emphasis in finance reform: adequacy became an important area of research and discussion with the appearance of the third wave of litigation reform though equity studies still maintained a strong presence in the literature.<sup>234</sup> The changing focus on adequacy in education finance research was due to the increased focus on outcomes coupled with the continued appeal of equal opportunity and a shift in legal strategies.<sup>235</sup>

Adequacy had not been a new concept in education finance or in litigation, and had traditionally been understood to refer to a legislature's decision of how much revenue was available.<sup>236</sup> During the 1990s, scholars had attempted to redefine adequacy to mean something related more toward sufficiency.<sup>237</sup> However, this new direction for adequacy came with a new problem, which was how to define what adequate meant. Guthrie and Rothstein summarized the problem thusly:

If adequate is to have a meaning beyond what is assigned to it via a set of political decisions about revenue availability, then a judgment has to be made about expected ends to be achieved, some level of accomplishment or performance. *Adequate to do what? Adequate how? Adequate for what purpose?* (emphasis in original)<sup>238</sup>

William Clune had defined adequacy to mean the resources which are sufficient (or adequate) to achieve some educational result, such as a minimum passing grade on a state achievement test.<sup>239</sup> Julie Underwood defined adequacy by relating it to vertical equity.<sup>240</sup> She described three types of inequality problems related to educational opportunity: 1) innate, 2) environmental, and 3) state-created. Innate inequality is the natural differences between students. Environmental inequality is created by differing social and economic conditions. The final type, state-created, results from a state's actions or omissions in its educational statutes. The first two types of inequalities created the need to apply vertical equity concepts into state formulas.<sup>241</sup> Underwood's contention was that providing various levels of funding to children of differing abilities was a state's constitutional responsibility.<sup>242</sup> However, Underwood did conclude that a definition of adequacy would be the responsibility of the individual states.<sup>243</sup> The need for states to define adequacy had been addressed by other scholars as well.<sup>244</sup>

The shift away from equity required a new definition and a new paradigm in understanding education finance. The main difference between equity and adequacy had been defined by scholars and the courts to mean a focus on outcomes rather than inputs.<sup>245</sup> Guthrie and Rothstein had concluded that discovering adequacy levels in a state required policy makers to consider what were the performance levels to be attained by students, and what levels of resources were necessary to determine those performance

levels.<sup>246</sup> In order to define adequacy, scholars would need to focus on creating a definitive understanding of what an adequate level of educational attainment would be required of students, and what level of resources would be necessary to provide that level of educational achievement.

Another problem related to the shift from equity to adequacy for scholars was defining the relationship between resources and educational achievement. Once again education finance researchers had attempted to define that relationship and had struggled to come to a definitive agreement as to the effect resources had on educational achievement.<sup>247</sup>

The view that expenditures had little impact on educational outcomes had been advanced by Eric Hanushek. Hanushek created a backlash of negative responses from scholars when he proposed as far back as 1981 that resources had little impact on educational attainment.<sup>248</sup> He had continued to defend his conclusions throughout the 1980s and 1990s despite opposition from other researchers. In a chapter of the American Education Finance Association's (AEFA) 1995 annual yearbook,<sup>249</sup> Hanushek concluded that the variations in school expenditures are exceedingly poor measures of the variations in education provided to students.<sup>250</sup> He opined that there was more than resources that affected educational achievement, and schools would be better off by systematically learning to improve the delivery of education in order to improve student performance. The problem for adequacy reform, according to Hanushek, was that the difficulty of defining any minimum level of resources needed for a specific level of educational



attainment led to the inability to determine how much expenditures were needed to bring disadvantaged students to the same level as advantaged students.<sup>251</sup>

Other researchers, who had opposed Hanushek's conclusions, had attempted to demonstrate a positive relationship between resources and expenditures. Hedges, Laine, and Greenwald had demonstrated that many of Hanushek's conclusions were based on flawed methodologies.<sup>252</sup> Hedges, Laine and Greenwald also synthesized research that had discussed the relationship between resources and educational outcomes. They developed a meta-analysis utilizing seven input variables from the literature and applied two null hypotheses: 1) did a positive relationship exist between resources and achievement, and 2) did a negative relationship exist between resources and achievement. Their study illustrated that school resources were systematically related to student achievement and that the relationship was favorably significant for education.<sup>253</sup>

Though scholars had been initially interested in leading states to create more equitable funding programs for education, the evolution of the finance litigation over the last three decades from equity to adequacy had led scholars toward more research on the relationship between funds and school outcomes, moving research from a primary *ex ante* perspective to an interest in *ex post* equity and adequacy variables. Finally, the increased move toward adequacy had led some scholars to production function research in an effort to quantify the relationship resources had to student outcomes.

### **Research Relating the Impact of Litigation to Funding**

The development of adequacy as a concern for education finance had also led scholars to investigate litigation's impact on funding. The major purpose of litigation had

been to bring more funding into the poorer school districts to match the higher funding levels of richer school districts, and initially, education finance researchers focused on litigation's impact on the equitable distribution of resources throughout the states.<sup>254</sup> However, with the advent of adequacy as a new focus in education finance litigation cases, the focus of scholarship began to change from just measuring equity to also measuring the increase of resources into education as a result of finance litigation, and also measuring the distribution of those funds within the districts.

Certain studies viewed the distribution of new funds into districts and discussed varying degrees of success. Picus and Fazal focused on the distribution of funding resources in schools.<sup>255</sup> They found that over the last thirty-five years, real expenditures per-pupil for education had increased by over 207 percent for the entire United States, though the rate of increase varied for different states. During this period, state expenditures had increased to 47 percent, accounting for the largest revenue source for K-12 education. An interesting finding of their study was that between 80 and 90 percent of the resources were spent at the school level for basic functions as instruction (salaries), student services, students, instructional support, general and site administration, maintenance and operations, student transportation, food services, and other services. Also, districts that tended to have more money spent about half of it on additional instructional improvements.<sup>256</sup> The problem with Picus and Fazal's study is that it only illustrated the growth of resources but did not correlate that growth to litigation efforts or any other factor. The overriding theme of finance litigation is that additional resources are needed in poor districts to make spending more equitable in comparison to richer districts.

Hence, the legal construct that finance litigation proponents argue was that increased funding will produce greater equity within a state. This is the predominant view of finance equity litigation.<sup>257</sup>

Other studies had viewed the effects litigation had on the distribution of resources within the districts. Goertz and Natriello conducted a study in 1999 for the National Research Council.<sup>258</sup> They reviewed the impact that litigation had on the financing of education in Kentucky, Texas and New Jersey. They found that all three states had improved equity both in expenditures and fiscal neutrality, with the greater results found in Texas and Kentucky.<sup>259</sup> Also, all three states had spent increased funds for viable categories with more than half the dollars going to instructional areas, but administration also received increased expenditures. Goertz and Natriello found that the states increased spending, but did not increase the proportional share of instruction over administration.<sup>260</sup> They also found that though low-wealth districts augmented salaries, staff development, technology, programs and facilities (or built new ones), districts did not change old spending patterns to maximize performance.<sup>261</sup> The conclusions of Goertz and Natriello did not present an easy future for researchers when it came to adequacy studies. They concluded that because of the lack of quantitative data regarding expenditures, the majority of the research present and future depended on qualitative data and research methodology, and that future research would be hampered because of the complexity of the variables needed for evaluation.<sup>262</sup> However, shifting into a new paradigm had always required the need for researchers to develop ways to interpret any new data being discovered. Education finance litigation had created two such paradigms since the onset

of *Serrano I*: equity and adequacy. Early scholarship into education litigation reform centered around the equitable distribution of resources, requiring a new body of research to interpret equity. Adequacy research was beginning to play a major role in education finance, and it will take time to develop a theoretical construct that will help researchers to interpret adequacy accurately. However, Goertz and Natriello focused their study on the impact litigation had on disbursement of resources and did not establish a clear relationship between litigation within the states they studied to any increase in resources for education.

Though most of the research during this period of modern education finance litigation focused on the effect that litigation had on the equity of expenditures within a state, there was a small body of research that sought to investigate litigation's impact on increasing the revenues for education.<sup>263</sup> These scholars were concerned with how much resources were actually being raised as a result of education litigation reform efforts.

The first to investigate the impact on resources was Hickrod et al.<sup>264</sup> In their study, Hickrod et al. compared all fifty states over a twenty-year period. They produced a typology of six categories after an analysis of the litigation in each state. The purpose of the categories were to compare the resources for each state before and after litigation had occurred. Hickrod et al. reported that those states that had litigation at the supreme court level, whether the plaintiffs had won or lost, had a higher increase in resources than those states where litigation was present but had not reached the state supreme court, or where no litigation had occurred. Hickrod et al. concluded that the findings of increased resources sanctioned the use of litigation for reform efforts.<sup>265</sup>

Michael Heise also analyzed the impact that litigation had on resources.<sup>266</sup> His study analyzed the expenditure differences for the states of Connecticut and Wyoming before and after litigation. Heise applied a multivariate approach to the question of litigation's impact on funding. He found that factors other than the litigation decisions in the two states played a more important role in expenditures. Heise found that litigation had a negative impact on spending in both states, with the effect being significant in Connecticut. The result of the Heise study contradicted the study by Hickrod et al. However, Heise's study viewed the impact of litigation on spending from a point in time rather than from a longitudinal perspective that the effect of court decisions is cumulative over time, as the study from Hickrod et al.<sup>267</sup> The study by Hickrod et al. viewed the impact of litigation over time, stressing that litigation can provide pressure on state legislatures, which would demonstrate incremental changes over time rather than an instantaneous change.<sup>268</sup> Also, Lauri Peternick seemed to support the conclusion of Hickrod et al. She found that litigation had a positive effect on increasing expenditures per pupil.<sup>269</sup>

Hickrod et al. produced another study for the National Center for Education Statistics in 1995.<sup>270</sup> Applying the same typology of their earlier study, Hickrod et al. sought to discover whether seeking equity within a state negatively affected adequacy<sup>271</sup> and if resource levels had risen in states where litigation had occurred. First, Hickrod et al. reviewed the percentage change in expenditures per pupil and regressed it against the percentage change in the coefficient of variation of expenditures per pupil for several states. They hypothesized that for equity to negatively affect adequacy in expenditure

levels, there would need to be a positive relationship between the two variables (i.e., low increases in expenditure per pupil would need to be related to reductions in disparity and high increases in expenditures per pupil would need to be related to increases in disparity.). They found a weak negative relationship between the two variables (with a Pearson product-moment correlation of  $-.15$ ), which indicated that high increases in per pupil expenditures were related to reductions in disparity and low increases in expenditures per pupil were related to increases in disparity. Their conclusion was that there may be no relationship between equity and adequacy because the two variables may have required different factors that influence them.

Hickrod et al. conducted a Chi Square test on the significance of state supreme court decisions on per-student expenditures and district disparity. They concluded that winning decisions equate to a reduction of disparity, and losing decisions equate to an increase in disparity. However, there was little evidence to demonstrate a significant effect on increasing the expenditures per pupil. Thus, Hickrod et al. concluded that litigation had a positive impact on reducing disparities between districts (which relates to equity), but little evidence that it increases the expenditures per student (which relates to adequacy).

In 1999 Evans, Murray, and Schwab published a study for the National Research Council<sup>272</sup> that reviewed the impact that litigation had on three areas: the adjustments for differences in the costs of inputs; the impact on low-household-income districts rather than low-spending districts; and the effect of reform on average spending for black and white students. Their study viewed not only the equity impact, but also sought to relate

the funding impact of litigation on increased resources. Evans et al. first began to view the actual cost differences as an important variable that affected resource variations within and between states. Using three deflation measures, they discovered that variation in revenues between states can be between 53 to 60 percent. Without adjustment, the figures raised the between-state inequality to 66 percent.

Next, Evans et al. analyzed the impact that litigation had on low-household-income districts. The purpose was to see the effect of litigation on those who could least afford to pay for an education. Using census data, Evans et al. developed three variables (court-mandated reform variables,<sup>273</sup> a quartile-specific fixed state effect, and a quartile-specific fixed year effect) and regressed them against the average student-weighted, per-pupil revenues from local and state sources as the dependent variable. They found that revenues for low-household-income districts increased after litigation and continued to do so years after reform had occurred.

The final analysis viewed the impact litigation had on increasing revenues for black and white students. Evans et al. found that litigation had increased revenues for black students on an average of \$448 per pupil. However, the same calculations illustrated that revenues for white students increased an average of \$574. Evans et al. were quick to point out that the parameters used in this portion of the study were imprecise and may account for the differences in revenues.<sup>274</sup> Though Evans et al. provided some support for increased funding had occurred in some areas within the states, the study limited that impact to one subgroup, which is a microanalysis. What they failed to support was whether overall funding within the state had occurred. What may have occurred within

the states was simply a redistribution of current funding levels and not a true increase in that funding.

Within the range of research in education finance, little research was conducted relating the effect that litigation had on revenue levels in the states. The exceptions, Heise, Peternick and Hickrod et al., provided inconclusive evidence that litigation had a positive impact on generating new money into the states' school systems. Though some research had illustrated that litigation had a negative impact on spending in the states,<sup>275</sup> other research had presented a more hopeful appraisal of litigation's impact on educational funding levels.<sup>276</sup> However, like earlier equity studies, the later research on the impact of litigation remained inconclusive. Thus, like the earlier equity studies, the later impact studies may require additional time to manifest statistical parameters that researchers will find clearly explain the relationship between education litigation and revenues.

This study continued the initial works of Heise, Peternick, and Hickrod et al. The focus of the study was on a macroanalysis of the impact litigation had on resource levels in the various states. Also, the study sought to refine the work of Heise and Hickrod by providing more data for analysis than what was presented in studies of Heise and Hickrod. Heise only analyzed two states, while Hickrod et al. annualized all fifty states but only used two years worth of data for analysis. This study provided an analysis of all fifty states and also incorporated spending levels across thirty-five years of education spending. The use of such a macroanalysis provided a clearer picture of the various



differences between the states that had experienced litigation and whether litigation had influenced spending levels.

## Notes

<sup>1</sup> Elchanan Cohn, *The Economics of Education* (Cambridge, Massachusetts: Ballinger Publishing Company 1979), 26.

<sup>2</sup> *Ibid.*, 27, 37.

<sup>3</sup> R. Craig Wood and David C. Thompson, *Educational Finance Law: Constitutional Challenges to State Aid Plans—An Analysis of Strategies*, 2nd 3d. (Topeka, Kansas: National Organization on Legal Problems of Education, 1996), 4. NOLPE is currently known as the Education Law Association (ELA).

<sup>4</sup> Thompson, Wood, and Honeyman, *Fiscal Leadership*, 24.

<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.*

<sup>7</sup> See, e.g., in Alabama: *Opinion of the Justices*, 624 So. 2d 107 (1993); *Ex Parte James*, 713 So. 2d 869 (1997); Alaska: *Matanuska-Susitna Borough Sch. Dist. v. Alaska*, 931 P.2d 391 (1997); *Kasayulie v. State*, No. 3AN 97-3782 Civ. (Superior Court, filed 1997); Arizona: *Roosevelt Elementary Sch. Dist. v. Bishop*, 179 Ariz. 233, 877 P.2d 806 (1994); *Hull v. Albrecht*, 190 Ariz. 520, 950 P.2d 1141 (1997); *Hull v. Albrecht*, 192 Ariz. 34, 960 P.2d 634 (1998); Arkansas: *Tucker v. Lake View Sch. Dist.*, 323 Ark. 693, 917 S.W.2d 530 (1996); Florida: *Coalition v. Chiles*, 680 So. 2d 400 (1996); *Honore v. Florida State Bd. of Educ.* (Leon County Circuit Court, filed January 1999); Idaho: *Idaho Sch. for Equal Educ. Opportunity v. Evens*, 123 Idaho 573, 850 P.2d 724 (1993); Illinois: *Committee for Educ. Rights v. Edgar*, 174 Ill.2d 1, 672 N.W.2d 1178 (1996); Kansas: *Unified Sch. Dist. v. State*, 256 Kan. 232, 885 P.2d 1170 (1994); *Robinson v. State*, No. 99-1193 (U.S. District Court, Kansas, filed May 21, 1999); Louisiana: *Minimum Found. Comm n v. State*, Docket No. 97CW0212 (La. Ct. App., June 29, 1998); *supervisory or remedial writ denied* (La. Sup. Ct., Nov. 13, 1998); Maine: *School Admin. Dist. v. Commissioner*, 659 A.2d 854 (1995); Maryland: *Bradford v. State Board of Education*, Circuit Court for Baltimore City (Consent Decree, Nov. 26, 1996) (described in related case of *Montgomery County v. Bradford*, 345 Md. 175, 691 A.2d 1281 (1997).); Massachusetts: *McDuffy v. Secretary of the Executive Office of Educ.*, 415 Mass. 545, 615 N.E.2d 516 (1993); Minnesota: *Skeen v. State*, 505 N.W.2d 299 (1993); Missouri: *Committee for Educ. Equal. v. State*, 878 S.W.2d 446 (1994); *Helena Elementary Sch. Dist. v. State*, 236 Mont. 44, 769 P.2d 684 (1989), *amended*, 784 P.2d 412 (1990); Nebraska: *Gould v. Orr*, 244 Neb. 163, 506 N.W.2d 349 (1993); New Hampshire: *Claremont Sch. Dist. v. Governor*, 138 N.H. 183, 635 A.2d 1375 (1993); *Claremont Sch. Dist. v. Governor*, 142 N.H. 462, 703 A.2d 1353 (1997); *Opinion of the Justices*, 142 N.H. 892, 712 A.2d 1080 (1998); New Jersey: *Abbott v. Burke*, 119 N.J. 287, 575 A.2d 359 (1990) (*Abbott II*); *Abbott v. Burke*, 136 N.J. 444, 643 A.2d 575 (1994) (*Abbott III*); *Abbott v. Burke*, 149 N.J. 145, 693 A.2d 417 (1997) (*Abbott IV*); *Abbott v. Burke*, 153 N.J. 480, 710 A.2d 450 (1998) (*Abbott V*); New York: *Campaign for Fiscal Equity v. State*, 86 N.Y.2d 307, 631 N.Y.S.2d 565 (1995); *Reform Educ. Fin. Inequities Today (R.E.F.I.T.) v. Cuomo*, 86 N.Y.2d 279, 631 N.Y.S.2d 551 (1995); North Carolina: *Leandro v. State*, 346 N.C. 336, 488 S.E.2d 249 (1997); North Dakota: *Bismarck Pub. Sch. Dist. v. State*, 511 N.W.2d 247 (1994); Ohio: *DeRolph v. State*, 78 Ohio St.3d 193, 677 N.E.2d 733 (1997); Oregon: *Coalition for EQUITABLE Sch. Funding v. State*, 311 Or. 300, 811 P.2d 116 (1991); *Withers v. State*, 133 Or.App. 377, 891 P.2d 675 (1995); *on remand, Withers v. State*, No. 94-CV-0074-TM (Deschutes County Circuit Court). (plaintiffs' petition for supplemental relief granted, Feb. 28, 1997); Pennsylvania: *Marrero v. Commonwealth*, 709 A.2d 956 (Commonwealth Court 1998); *Pennsylvania Ass'n of Rural & Small Sch. v. Commonwealth*, Docket No. 11 M.D. 1991 (Commonwealth Court, July 9, 1998); Rhode Island: *City of Pawtucket v. Sundlun*, 662 A.2d 40 (1995); South Carolina: *Richland County v. Campbell*, 294 S.C. 346, 364 S.E.2d 470 (1988); *Abbeville County Sch. Dist. v. State*, 335 S.C. 58, 515 S.E.2d 535, 1999 S.C. Lexis 83; Tennessee: *Tennessee Small Sch. Sys. v. McWherter*, 851 S.W.2d 139 (1993); *Tennessee Small Sch. Sys. v. McWherter*, 894 S.W.2d 734 (1995); Texas: *Edgewood Indep. Sch. Dist. v. Kirby*, 777 S.W.2d 391 (1989) (*Edgewood I*); *Edgewood*

*Indep. Sch. Dist. v. Kirby*, 804 S.W.2d 491 (1991) (*Edgewood II*); *Edgewood Indep. Sch. Dist. v. Meno*, 893 S.W.2d 450 (1995) (*Edgewood III*); Vermont: *Brigham v. State*, 166 Vt. 246, 692 A.2d 384 (1997); Virginia: *Scott v. Commonwealth*, 443 S.E.2d 138 (1994); Wisconsin: *Vincent v. Voight*, No. 95-CV-2586 (Circuit Court of Dane County, July 18, 1997); *affirmed with unpublished opinion*, Docket No. 97-3174 (Wis. Ct. of Appeal, Dec. 23, 1998); Wyoming: *Campbell County Sch. Dist. v. State*, 907 P.2d 1238 (1995).

<sup>8</sup> Wood and Thompson, *Educational Finance Law*, 102.

<sup>9</sup> *Ibid.*, 2-3.

<sup>10</sup> *Ibid.*, 3. See, also, R. Craig Wood and David S. Honeyman, Adequacy and Excellence: Twin Dilemmas for the States, *Educational Considerations* 17 (1990): 27-30.

<sup>11</sup> Wood and Thompson, *Education Finance Law*, 2.

<sup>12</sup> R. Craig Wood and Jeffrey Maiden, Resource Allocation Patterns Within School Finance Litigation Strategies, in *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger (Thousand Oaks, California: Corwin Press, Inc., 1995.), 198.

<sup>13</sup> *Ibid.*

<sup>14</sup> William E. Thro, *The Third Wave: The Impact of the Montana, Kentucky, and Texas Decisions on the Future of Public School Finance Reform Litigation*, 19 J. L. & Educ. 231, 232 (1990).

<sup>15</sup> See, e.g., *Coalition v. Chiles*, 680 So. 2d 400 (Fla. 1996); *Scott v. Commonwealth*, 443 S.E.2d 138 (Va. 1994).

<sup>16</sup> For a full explanation of the needed strategies, see R. Craig Wood, School Finance in the 1990s (paper presented at the National Symposium on Education Finance, National Conference of State Legislatures, San Antonio, Tex., February, 1992), and R. Craig Wood, School Finance Litigation in America (paper presented at the annual meeting of the National Organization on Legal Problems in Education, Phoenix, Ariz., November, 1992).

<sup>17</sup> Wood and Maiden, Resource Allocation Patterns, 198.

<sup>18</sup> See Eric A. Hanushek, Throwing Money at Schools, *Journal of Policy Analysis and Management*, 1 (1981): 19-41; Eric A. Hanushek, The Impact of Differential Expenditures on School Performance, *Educational Researcher*, 18 (1989): 45-65; Eric A. Hanushek, The Economics of Schooling: Production and Efficiency in Public Schools, *Journal of Economic Literature* 24 (1986): 1141-1177; Eric A. Hanushek, When School Finance Reform May Not Be a Good Policy, *Harvard Journal on Legislation* 28 (1991): 423-456; Eric A. Hanushek, The Quest for Equalized Mediocrity: School Finance Reform Without Consideration of School Performance. In *Where Does the Money Go?*; Richard A. King and Bettye MacPhail-Wilcox, Unraveling the Production Equation: The Continuing Quest for Resources That Make a Difference, *Journal of Education Finance* 20 (1994): 47-65. Hanushek has led the research in the field of relating resources to student achievement, but there are some researchers who contest Hanushek's findings. Their studies have found a positive correlation between spending and achievement but require additional research to collaborate their findings. The following are studies dealing with the positive influence of funding in education: Larry V. Hedges, Richard D. Laine, and Rob Greenwald, Does Money Matter?: A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes, *Educational Researcher* 23, no. 3 (1994): 5-14; Richard D. Laine, Rob Greenwald, and Larry V. Hedges, Money Does Matter: A Research Synthesis of a New Universe of Education Production Function Studies. in *Where Does the Money Go?*

<sup>19</sup> William T. Hartman, Education Funding Disparities: What Do the Dollars Buy? *Journal of Education Finance* 24, no. 3, 391 n. 9.

<sup>20</sup> See, e.g., Peter Enrich, Leaving Equality Behind: New Directions in School Finance Reform, *Vand. L. Rev.* 48 (1995): 101-194; Julie K. Underwood, School Finance Adequacy as Vertical Equity, *U. of Mich. J. of L. Reform* 28 (1995): 493-519; Paul A. Minorini and Stephen D. Sugarman, Educational Adequacy and the Courts: The Promise and Problems of Moving to a New Paradigm, in *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen (Washington D.C.: National Academy Press, 1999), 175-208.

<sup>21</sup> Robert Berne and Leanna Stiefel, *The Measurement of Equity in School Finance: Conceptual, Methodological and Empirical Dimensions* (Baltimore: The Johns Hopkins University Press, 1984), 8.

<sup>22</sup> *Ibid.*

<sup>23</sup> For an explanation of taxpayer equity, see Wood and Thompson, *Education Finance Law*, 17-18. See also Berne and Stiefel, *Measurement of Equity*, 40-42.

<sup>24</sup> Thompson, Wood, and Honeyman, *Fiscal Leadership*, 57.

<sup>25</sup> One method of accomplishing this would require a type of equalization plan, which some states have attempted after reform litigation. The theory of power equalization was proposed by Coons, Clune and Sugarman (See, e.g. John E. Coons, William H. Clune, and Stephen D. Sugarman, *Private Wealth and Public Education* (Cambridge, MA: Harvard University Press, 1970). Coons et al., proposed a program of power equalization where dollars per student was a function of effort by the district, resulting in equal dollars for equal effort, which would develop a funding system where a child's education would not be dependent on his neighbor's wealth, 202.

<sup>26</sup> R. Berne and L. Stiefel, Concepts of School Finance Equity: 1970 to the Present, in *Equity and Adequacy*, 36.

<sup>27</sup> Thompson, Wood, Honeyman, *Fiscal Leadership*, 57.

<sup>28</sup> *Ibid.*

<sup>29</sup> *Ibid.*

<sup>30</sup> See, e.g., *Coalition v. Chiles*, 680 So. 2d 400 (1995); and *Pawtucket v. Sundlun*, 662 A.2d 40 (1995); These cases illustrate the difficulty of convincing the courts that education spending created differences in performance between school districts.

<sup>31</sup> Thompson, Wood, and Honeyman, *Fiscal Leadership*, 43.

<sup>32</sup> See, e.g., *Helena v. State*, 236 Mont. 44, 769 P.2d 684 (1989), *Edgewood v. Kirby*, 777 S.W. 2d 391 (1989) (*Edgewood I*); *Rose v. Council*, 790 S.W.2d 186 (1989); *Leandro v. State*, 346 N.C. 336, 488 S.E.2d 249 (1997); and *Abbeville v. State*, 335 S.C. 58; 515 S.E.2d 535; *Leandro* and *Abbeville* may show a trend for state supreme courts to address the adequacy argument separately from equity. Both of these cases upheld the distribution formula as equitable, but questioned whether the level of funding in the state was sufficient to provide adequate educational attainment of students.

<sup>33</sup> William Clune, *The Shift From Equity to Adequacy in School Finance*, 28 U. Mich. J. of L. Reform, 481-491, at 481 (1995).

<sup>34</sup> Berne and Stiefel, Concepts of School Finance Equity, 22.

<sup>35</sup> Paul A. Minorini and Stephen D. Sugarman, Educational Adequacy and the Courts, in *Equity and Adequacy*, 188.

<sup>36</sup> *Ibid.*

<sup>37</sup> See, e.g., *McDuffy v. Secretary*, 415 Mass. 5454, 615 N.E.2d 516 (1993); *Rose v. Council*, 790 S.W.2d 186 (1989); *Edgewood I*, 777 S.W.2d 391 (1989); *Helena v. State*, 236 Mont. 44, 760 P.2d 684 (1989), amended, 784 P.2d 412 (1990); *Leandro v. State*, 346 N.C. 336, 488 S.E.2d 249 (1997); and *Abbeville v. State*, 335 S.C. 58, 515 S.E.2d 535.

<sup>38</sup> Thompson, Wood, Honeyman, *Fiscal Leadership*, 267.

<sup>39</sup> *Ibid.*

<sup>40</sup> *Ibid.*, 268.

<sup>41</sup> See *Ibid.*, 268. See, also, nn. 11-15, 294.

<sup>42</sup> *Ibid.*, 268.

<sup>43</sup> *Ibid.*, 269. See, also, nn. 16-19, 295.

<sup>44</sup> *Ibid.*, 269.

<sup>45</sup> *Plessy v. Ferguson*, 163 U.S. 537, 16 S.Ct. 1138 (1896), overruled by *Brown v. Bd. of Educ.*, 347 U.S. 483, 74 S.Ct. 686 (1954).

<sup>46</sup> For a thorough explanation of the role that segregation had in public education, see Kern Alexander and M. David Alexander, *American Public School Law*, 4th ed. (Belmont, CA: West/Wadsworth, 1998).

<sup>47</sup> See, *Roberts v. City of Boston*, 149 Mass. 346, 21 N.E. 668.

<sup>48</sup> *Plessy*, 163 U.S. at 544.

<sup>49</sup> *Cummings v. Board of Richmond County*, 175 U.S. 528, 20 S.Ct. 197 (1899).

<sup>50</sup> Wood and Thompson, *Education Finance Law*, 5.

<sup>51</sup> 347 U.S. 483, 74 S.Ct. 686 (1954).

<sup>52</sup> *Brown*, 347 U.S. at 483. Chief Justice Earl Warren, writing for the Court, wrote that "we conclude that in the field of public education the doctrine of separate but equal has no place. Separate educational facilities are inherently unequal."

<sup>53</sup> Wood and Thompson, *Education Finance Law*, 10.

<sup>54</sup> Thompson, Wood and Honeyman, *Fiscal Leadership*, 271.

<sup>55</sup> *Ibid.*

<sup>56</sup> See, e.g., Arthur Wise, *Rich Schools, Poor Schools: The Promise of Equal Educational Opportunity* (Chicago: University of Chicago Press 1968); Harold Horowitz, *Unseparate but Unequal: The Emerging Fourteenth Amendment Issue in Public School Education*, *UCLA Law Review* 13 (1966): 1147-1172; and Harold Horowitz and David Neitring, *Equal Protection Aspects of Inequalities in Public Education and Public Assistance Programs From Place to Place Within a State*, *UCLA Law Review* 15 (1968): 787-816.

<sup>57</sup> U.S. Const. amend XIVC, sec. 1 (No state shall...deny to any person within its jurisdiction the equal protection of the law.).

<sup>58</sup> Paul. A. Minorini and Stephen D. Sugarman, *School Finance Litigation in the Name of Educational Equity: Its Evolution, Impact, and Future*, in *Equity and Adequacy*, 35.

<sup>59</sup> See section in this chapter for an explanation of Wise's and Horowitz's theories.

<sup>60</sup> Minorini and Sugarman, *School Finance Litigation*, 36. Minorini and Sugarman stated that early litigation by legal-aid lawyers did not consider Wise's horizontal equity theory substantial enough, nor did they feel that Horowitz's theory required enough from the states. These attorneys felt that it was imperative for states to pay more funds for students from low-income families to match those of students from higher-income families. The basic thrust of the legal-aid lawyers' need-based constitutional claim was that rich and poor children had a right to have their educational needs equally met. This principle, which some scholars have termed vertical equity, required unequal spending. (36) However, this legal tactic proved fatal for the cases of *McInnis v. Shapiro*, 293 F. Supp. 327 (N.D. Ill. 1968), *aff'd sub nom.*, *McInnis v. Ogilvie*, 349 U.S. 322, 89 S.Ct. 1197 (1969); and *Burrus v. Wilkerson*, 310 F. Supp. 572 (W.D. Va. 1969), *aff'd per curiam*, 397 U.S. 44 (1970) because the need was undefined, and the courts could not understand what was an appropriate level of funding to meet this undetermined need.

<sup>61</sup> *McInnis*, 293 F. Supp. 327 (N.D. Ill. 1968), *aff'd sub nom. McInnis v. Ogilvie*, 349 U.S. 322, 89 S.Ct. 1197 (1969).

<sup>62</sup> *Burrus*, 310 F. Supp. 572 (W.D. Va. 1969), *aff'd per curiam*, 397 U.S. 44 (1970).

<sup>63</sup> *McInnis*, 293 F. Supp. at 329, and *Burrus*, 310 F. Supp. at 573.

<sup>64</sup> Minorini and Sugarman, *School Finance Litigation*, 37.

<sup>65</sup> William Thro, *The Third Wave*, 231.

<sup>66</sup> See Coons, Clune and Sugarman, *Private Wealth and Public Education*. The concepts of equal educational opportunity are described in further detail in the section of this chapter titled Background of Education Finance Study in the United States.

<sup>67</sup> The three waves of litigation reform were first detailed by William Thro in 1990: See Thro, *The Third Wave*. Other legal scholars have also explained the three waves of litigation: Gail F. Levine, *Meeting the Third Wave: Legislative Approaches to Recent Judicial School finance Ruling*, *Harv. J. on Legis.* 28 (1991): 507-527; Julie K. Underwood, and William E. Sparkman, *School Finance Litigation: A New Wave of Reform*, *Harv. J.L. & Pub. Pol'y* 14 (1991): 517-525; Michael Heise, *State Constitutions, School Finance Litigation, and the Third Wave: From Equity to Adequacy*, *Temple L. Rev.* 68 (1995): 1151-167; Peter Enrich, *Leaving Equality Behind*. The above explanation will utilize the descriptions of the three waves spelled out by Thro and others.

<sup>68</sup> See, e.g., Wise, *Rich Schools, Poor Schools*; Horowitz *Unseparate but Unequal*; Horowitz and Neitring, *Equal Protection*; and Coons, Clune and Sugarman, *Private Wealth and Public Education*.

<sup>69</sup> Heise, *From Equity to Adequacy*, 1153.

<sup>70</sup> Thro, *The Third Wave*, 223. For an explanation of fiscal neutrality, see Coons, Clune and Sugarman, *Private Wealth and Public Education*. Coons, Clune and Sugarman initially called their theory Proposition I, but later scholars referred to it as fiscal neutrality.

<sup>71</sup> *Serrano v. Priest*, 5 Cal.3d 584, 487 P.2d 1241, 96 Cal. Rptr. 601 (1971).

<sup>72</sup> Thro, *The Third Wave*, 223.

<sup>73</sup> *Serrano I*, 5 Cal.3d 584, 589.

<sup>74</sup> See, e.g., *Van Duzart v. Hatfield*, 334 F. Supp. 870 (D. Minn. 1971); *Hargrave v. Kirk*, 313 F. Supp. 944 (M.D. Fla. 1970), *vacated and remanded on other grounds sub nom., Askew v. Hargrave*, 401 U.S. 476 (1971); *Rodriguez v. San Antonio Indp. School Dist.*, 337 F. Supp. 280 (W.D. Tex. 1971); *rev'd*, 411 U.S. 1, 93 S.Ct. 1287 (1973); *Parker v. Mandel*, 344 F. Supp. 1068 (D. Md. 1972). These cases

were filed in federal court using the fiscal neutrality theory based on the Federal Constitution. For other cases filed on a state level, see *Hollins v. Shofstall*, Civ. No. C-253652 (Ariz. Super. Ct. 1972); *rev'd*, 110 Ariz. 88, 515 P.2d 590 (1973); *Milliken v. Green*, 203 N.W.2d 457 (1972); and *Milliken v. Green*, 212 N.W.2d 711 (1973); *Blas v. State*, 55 Ill.2d 94, 302 N.E.2d 46 (1973); *Caldwell v. Kansas*, Civ. No. 50616 (Johnson County Dist. Ct. Kan. 1972); *Robinson v. Cahill*, 118 N.J. Super. 223, 287 A.2d 187 (1972), *aff'd* 62 N.J. 473, 303 A.2d 273 (1973), *cert. denied sub nom. Robinson v. Dickey*, 414 U.S. 976 (1974); *Spano v. Board of Educ.*, 68 Misc. 2d 804, 328 N.Y.S.2d 229 (Sup. Ct. 1972); *Sweetwater County Planning Comm. v. Hinkle*, 491 P.2d 1234 (1971); and *Northshore Sch. Dist. V. Kinnear*, 530 P.2d 178 (1974).

<sup>75</sup> *Serrano I*, 5 Cal.3d 584, 590.

<sup>76</sup> *Ibid.* at 590-91.

<sup>77</sup> *Ibid.* at 591.

<sup>78</sup> Thompson, Wood and Honeyman, *Fiscal Leadership*, 276.

<sup>79</sup> *Serrano I*, 5 Cal. 584, 608.

<sup>80</sup> *Ibid.* at 598.

<sup>81</sup> *Ibid.* at 608, 614.

<sup>82</sup> *Ibid.* at 604.

<sup>83</sup> Thro, *The Third Wave*, at n. 25.

<sup>84</sup> Thompson, Wood and Honeyman, *Fiscal Leadership*, 277.

<sup>85</sup> Though equity in education had been sought since the beginning of education in America, (Roe L. Johns, *Improving the Equity of School Finance Programs*, *Journal of Education Finance* 1, no. 4 (1976):540-549, 540.), *Serrano I* motivated a new generation of education researchers to define what an equitable education was. For some of the early research during the 1970s, see, G. Allan Hickrod, Ben C. Hubbard, and Thomas wei-chi Yang, *The 1973 Reform of the Illinois General Purpose Grant in Aid* (Normal, Illinois: Department of Educational Administration, Illinois State University, 1973); Roe L. Johns and Edgar L. Morphet, *The Economics and Financing of Education* (Englewood Cliffs, NJ: Prentice Hall, Inc., 1975); Thomas wei-chi Yang, *Measurement of School Revenue Equity in the States of Illinois, Michigan and Kansas* (Normal, Illinois: Illinois State University, 1975); Robert J. Goettel and Robert E. Firestone, *Declining Enrollments and State Aid: Another Equity and Efficiency Problem*, *Journal of Education Finance* 1, no. 4 (1975): 202-215; Roe L. Johns, *Improving the Equity of School Finance Programs*; Roe L. Johns, *Analytical Tools in School Finance Reform*, *Journal of Education Finance* 2, no. 4 (1977): 499-508; Kern Alexander, *The Wealth Tax as an Alternative Revenue Source for Public Schools*, *Journal of Education Finance* 2, no. 4 (1977): 451-480; Terry G. Geske and Richard A. Rossmiller, *The Politics of School Fiscal Reform in Wisconsin*, *Journal of Education Finance* 2, no. 4 (1977):513-532.

<sup>86</sup> Gilbert E. Bursley, *The Political Strategies and Fiscal Ramifications of Educational Finance Reform*, *Journal of Education Finance* 1, no. 1 (1975): 1-18, 6.

<sup>87</sup> 411 U.S. 1, 93 S.Ct. 1287, 36 L.Ed.2d 16, *reh'g denied*, 411 U.S. 959, 93 S.Ct. 1919, 36 L.Ed.2d 956.

<sup>88</sup> *Ibid.* at 281.

<sup>89</sup> *Ibid.* at 283.

<sup>90</sup> *Rodriguez v. San Antonio Ind. Sch. Distr.*, 337 F. Supp. 280

<sup>91</sup> *Rodriguez*, 411 U.S. 17.

<sup>92</sup> Thompson, Wood and Honeyman, *Fiscal Leadership*, 273.

<sup>93</sup> *Rodriguez*, 93 S.Ct. at 1288.

<sup>94</sup> *Ibid.* at 1302.

<sup>95</sup> *Ibid.* at 1288

<sup>96</sup> *Ibid.* at 1292.

<sup>97</sup> Thompson, Wood and Honeyman, *Fiscal Leadership*, 273.

<sup>98</sup> *Ibid.*

<sup>99</sup> Heise, *From Equity to Adequacy*, 1153.

<sup>100</sup> Thro, *The Third Wave*, 224. See, also, nn. 34, 35.

<sup>101</sup> *Ibid.* at 229.

<sup>102</sup> *Robinson v. Cahill*, 62 N.J. 473, 303 A.2d 273 (1973).

<sup>103</sup> Thro, *The Third Wave*, 228. See, also, pp. 226-27, and nn. 34-38 for an explanation of the developing reliance on state constitutions.

<sup>104</sup> See, e.g., *Horton v. Meskill (Horton I)*, 332 A.2d 113 (Conn. Super. 1974); *State ex. Rel. Woodahl v. Straub*, 164 Mont. 141, 520 P.2d 776 (1974); *Thompson v. Engelking*, 96 Idaho 793, 537 P.2d 635 (1975); *Olsen v. State*, 276 Or. 9, 554 P.2d 139 (1976); *Horton v. Meskill (Horton II)*, 172 Conn. 615, 376 A.2d 359 (1977); *Serrano v. Priest (Serrano II)*, 18 Cal.2d 728, 557 P.2d 135, 135 Cal. Rptr. 345 (1977); *Seattle School Dist. No. One v. State*, 90 Wash. 2d 476, 585 P.2d 71 (1978); *Washakie County School Dist., No. One v. Herschler*, 606 P.2d 310 (1980); *Pauley v. Kelly*, 255 S.E. 29 859 (W. Va. 1979); *Board of Educ. v. Walter*, 58 Ohio St. 2d 368, 390 N.E.2d 813 (1979); *Danson v. Casey*, 399 A.2d 360 (1979); *McDaniel v. Thomas*, 285 S.E.2d 156 (1981); *Lujan v. Colorado State Bd. of Educ.*, 649 P.2d 1005 (1982); *Levittown Union Free School Dist. vs. Nyquist*, 57 N.Y.2d 127, 439 N.E.2d 359 (1982); *Sutton v. Cadillac Area Pub. Sch.*, 323 N.W.2d 582 (1982); *McDaniel v. Thomas*, 248 Ga. 632, 285 S.E.2d 156 (1982); *Dupree v. Alma School Dist. Number 30*, 279 Ark. 340, 651 S.W.2d 90 (1983); *Hornbeck v. Somerset County Bd. of Educ.*, 458 A.2d 758 (1983); *Pauley v. Bailey*, 324 S.E.2d 128 (1984); *East Jackson Public Schools v. State*, 348 N.W.2d 303 (1984); *Horton v. Meskill (Horton III)*, 486 A.2d 1099 (1985); *Britt v. North Carolina State Bd. of Educ.*, 86 N.C. App. 282, 357 S.E.2d 432, *aff'd mem.*, 320 N.C. 790, 361 S.E.2d 71 (1987); *Fair School Finance Council of Oklahoma, Inc. v. State*, 746 P.2d 1135 (1987); *Richland County v. Campbell*, 294 S.C. 346, 364 S.E.2d 470 (1988); *Rose v. Council for Better Educ., Inc.*, No. 88-SC-804-TG (Ky. June 8, 1989); *Helena Elementary School Dist. No. 1 v. State*, 769 P.2d 684 (1989); *Edgewood Indp. School Dist. v. Kirby*, No. C-8353 (Tex. Oct. 2, 1989); *Kukor v. Grover*, 148 Wis. 2d 4690, 436 N.W.2d 568 (1989).

<sup>105</sup> Thro, *The Third Wave*, 230.

<sup>106</sup> *Ibid.*, 229-230. See, also nn. 49, 50. Thro provides a detailed explanation of the various state equal protection guarantees. He states that only a handful of states actually have an equal protection clause, but that most states follow one of three paths of interpreting some measure of equal protection: 1) They follow the federal Equal Protection without deviation, 2) they use the federal guidelines to develop their own analysis of what constitutes a fundamental right or suspect class; or 3) they reject the federal guidelines and develop an independent concept of fundamental rights.



<sup>107</sup> The exceptions were *Blas v. State*, 55 Ill.2d 94, 302 N.E.2d 46 (1973); *State ex. Rel. Woodahl v. Straub*, 164 Mont. 141, 520 P.2d 776 (1974); *Seattle School District Number One v. State*, 90 Wash.2d 476, 585 P.2d 71 (1978); *Danson v. Casey*, 484 Pa. 415, 399 A.2d 360 (1979); and *Britt v. North Carolina State Bd. of Educ.*, 86 N.C. App. 282, 357 S.E.2d 432, appeal dismissed, 320 N.C. 790, 361 S.E.2d 71 (1987); which used only the states' education clauses in the plaintiffs' arguments. Thro believed that in order for an argument using an equality provision to win, the court would have to find that education was either a fundamental right under the state constitution, wealth was a suspect class, or that the system of financing public schools was irrational. (Thro, *The Third Wave*, 230. See, also, nn. 51-52.).

<sup>108</sup> William Thro, Note, To Render Them Safe: The Analysis of State Constitutional Provision in Public School Finance Reform Litigation, *Va. L. Rev.* 75 (1989): 1639-1685, 1679.

<sup>109</sup> For cases where plaintiffs won on the state supreme court level, or the lower court rulings were upheld, see *Horton v. Meskill (Horton I)*, 332 A.2d 113 (Conn. Super. 1974); *Horton v. Meskill (Horton II)*, 172 Conn. 615, 376 A.2d 359 (1977); *Serrano v. Priest (Serrano II)*, 18 Cal.2d 728, 557 P.2d 135, 135 Cal. Rptr. 345 (1977); *Seattle School Dist. No. One v. State*, 90 Wash. 2d 476, 585 P.2d 71 (1978); *Washakie County School Dist., No. One v. Herschler*, 606 P.2d 310 (1980); *Pauley v. Kelly*, 255 S.E. 29 859 (1979); *Dupree v. Alma School Dist. Number 30*, 279 Ark. 340, 651 S.W.2d 90 (1983); *Pauley v. Bailey*, 324 S.E.2d 128 (1984); *Horton v. Meskill (Horton III)*, 486 A.2d 1099 (1985). For cases where plaintiffs lost at the supreme court level, and further litigation also lost, see *State ex. Rel. Woodahl v. Straub*, 164 Mont. 141, 520 P.2d 776 (1974); *Thompson v. Engelking*, 96 Idaho 793, 537 P.2d 635 (1975); *Olsen v. State*, 276 Or. 9, 554 P.2d 139 (1976); *Danson v. Casey*, 399 A.2d 360 (1979); *Board of Educ. v. Walter*, 58 Ohio St. 2d 368, 390 N.E.2d 813 (1979); *McDaniel v. Thomas*, 285 S.E.2d 156 (1981); *Lujan v. Colorado State Bd. of Educ.*, 649 P.2d 1005 (1982); *Levittown Union Free School Dist. vs. Nyquist*, 57 N.Y.2d 127, 439 N.E.2d 359 (1982); *Sutton v. Cadillac Area Pub. Sch.*, 323 N.W.2d 582 (1982); *McDaniel v. Thomas*, 248 Ga. 632, 285 S.E.2d 156 (1982); *Hornbeck v. Somerset County Bd. of Educ.*, 458 A.2d 758 (1983); *East Jackson Public Schools v. State*, 348 N.W.2d 303 (1984); *Britt v. North Carolina State Bd. of Educ.*, 86 N.C. App. 282, 357 S.E.2d 432, *aff'd mem.*, 320 N.C. 790, 361 S.E.2d 71 (1987); *Fair School Finance Council of Oklahoma, Inc. v. State*, 746 P.2d 1135 (1987); *Richland County v. Campbell*, 294 S.C. 346, 364 S.E.2d 470 (1988); *Kukor v. Grover*, 436 N.W.2d 568, (1989).

<sup>110</sup> Kevin Randall McMillan, Note: The Turning Tide: The Emerging Fourth Wave of School Finance Reform Litigation and the Courts' Lingering Institutional Concerns, *OHIO ST. L.J.* 58 (1998): 1867-1895, 1873.

<sup>111</sup> Enrich, *Leaving Equality Behind*, 145.

<sup>112</sup> For a detailed description of the development of equity theory during the 1970s, see Robert Berne and Leanna Stiefel, Concepts of Equity and Their Relationship to State School Finance Plans, *Journal of Education Finance* 5, no. 2 (1979): 109-132. For a description of equity theory in the 1980s, see Berne and Stiefel, *The Measurement of Equity*.

<sup>113</sup> Enrich, *Leaving Equality Behind*, 108.

<sup>114</sup> *Ibid.* at 109

<sup>115</sup> *Helena v. State*, 236 Mont. 44, 769 P.2d 684 (1989); *amended*, 784 P.2d 412 (1990).

<sup>116</sup> *Rose v. Council*, 790 S.W.2d 186 (1989).

<sup>117</sup> *Edgewood v. Kirby*, 777 S.W.2d 391 (1989).

<sup>118</sup> See, *Helena*, 769 P.2d at 689; *Rose*, 790 S.W.2d at 59; and *Edgewood*, 777 S.W.2d at 397.

<sup>119</sup> Minorini and Sugarman, *School Finance Litigation*, 52.



<sup>120</sup> Heise, *From Equity to Adequacy*, 1164. Heise is referring to the Court's statement regarding education in *Brown*, 345 U.S. 483, 493 (1954) (This is found in Chapter 1 of this dissertation.), and *Rodriguez*, 411 U.S. 1, 36 (1973) ( "...even if it were conceded that some identifiable quantum of education is a constitutionally protected prerequisite to the meaningful exercise of either right. ).

<sup>121</sup> Enrich, *Leaving Equality Behind*, 167-168.

<sup>122</sup> Berne and Stiefel, *Concepts of School Finance Equity*, 22.

<sup>123</sup> Minorini and Sugarman, *School Finance Litigation*, 63.

<sup>124</sup> See, e.g., *Coalition v. Hunt*, printed in *Opinion of the Justices*, 624 So. 2d 107 (1993); *McDuffy v. Secretary*, 415 Mass. 545, 615 N.E.2d 1281 (1997); *Leandro v. State*, 346 N.C. 336, 488 S.E.2d 249 (1997); *Claremont v. Governor*, 138 N.H. 183, 635 A.2d 1375 (1993); *Tennessee Small Sch. Sys. v. McWherter*, 851 S.W.2d 139 (1993); *Roosevelt v. Bishop*, 179 Ariz. 233, 877 P.2d 806 (1994); and *Campaign for Fiscal Equity v. State*, 86 N.Y.2d 307, 631 N.Y.S.2d 565 (1995).

<sup>125</sup> See, e.g., *Kukor v. Grover*, 436 N.W.2d 568 (1989); *Coalition v. State*, 811 P.2d 116 (1991); *Coalition v. Chiles*, 680 So. 2d 400 (1996); *Idaho Schs. for Equal Educ. Opportunity v. State*, 850 P.2d 724 (1993); *Skeen v. State*, 505 N.W.2d 299 (1993); *U.S.D. No. 229 v. State*, 885 P.2d 1170 (1994); *School Admin. Dist. No. 1 v. Commissioner*, 659 A.2d 854 (Me. 1994); *Bismark Public School #1 v. State*, 511 N.W.2d 247 (1994); *Scott V. Commonwealth*, 443 S.E.2d 138 (1994); *School Admin. Dist. No. 1 v. Commissioner*, 659 A.2d 854 (1995); *Gould v. Orr*, 506 N.W.2d 349 (1993); *R.E.F.I.T. v. Cuomo*, 631 N.Y.S.2d 551 (1995); *Pawtucket v. Sundlun*, 662 A.2d 40 (1995); *Sheff v. O'Neill*, 678 A.2d 1267 (1996); *Committee v. Edgar*, 672 N.W.2d 1178 (1996); *Matanuska-Sustina v. State*, 931 P.2d 391 (1997).

<sup>126</sup> See, e.g., *Coalition v. Chiles*, 680 So. 2d 400 (Fla. 1996). The Florida Supreme Court ruled against the plaintiffs' adequacy argument because the appellants have failed to demonstrate in their allegations, or in their arguments on appeal, an appropriate standard for determining adequacy that would not present a substantial risk of judicial intrusion into the powers and responsibilities assigned to the legislature. (408)

<sup>127</sup> See, e.g., *Gould v. Orr*, 506 N.W.2d 349 (1993); *R.E.F.I.T. v. Cuomo*, 631 N.Y.S.2d 551 (1995). Both courts in these cases ruled against the plaintiffs because of the plaintiffs' arguments trying to equate disparity with adequacy.

<sup>128</sup> McMillan, *The Emerging Fourth Wave*, 1890.

<sup>129</sup> *Sheff v. O'Neill*, 678 A.2d 1267.

<sup>130</sup> McMillan, *The Emerging Fourth Wave*, 1897.

<sup>131</sup> *Ibid.*, 1898.

<sup>132</sup> *Ibid.*, 1899.

<sup>133</sup> Indira A. R. Lakshmanan, *New Jersey Schools Offer Omen for Massachusetts*, *Boston Sunday Globe*, 20 June 1993, 1.

<sup>134</sup> Elwood P. Cubberley, *School Funds and Their Apportionment* (New York: Teachers College, Columbia University 1905).

<sup>135</sup> *Ibid.*, 17.

<sup>136</sup> *Ibid.*, 81.

<sup>137</sup> Harlan Updegraff and L. A. King, *Survey of the Fiscal Policies of the State of Pennsylvania in the Field of Education* (1922).

<sup>138</sup> Wood and Thompson, *Education Finance Law*, 7 n. 18.

<sup>139</sup> George D. Strayer and Robert M. Haig, *The Financing of Education in the State of New York*, report reviewed and presented by The Educational Finance Inquiry Commission under the auspices of the American Council on Education, Washington, DC (New York: The Macmillan Company 1923).

<sup>140</sup> *Ibid.*, 173.

<sup>141</sup> *Ibid.*, 174.

<sup>142</sup> *Ibid.*, 176.

<sup>143</sup> Wood and Thompson, *Education Finance Law*, 8.

<sup>144</sup> *Ibid.*

<sup>145</sup> Henry C. Morrison, *School Revenue* (Chicago: University of Chicago Press, 1930).

<sup>146</sup> Wood and Thompson, *Education Finance Law*, 37-38. Hawaii's reliance on a full-state funding program can be explained on the lack of a traditional model of local school districts.

<sup>147</sup> *Ibid.*, 36.

<sup>148</sup> Paul R. Mort, *The Measurement of Educational Need* (New York: Columbia University Teachers College, 1924).

<sup>149</sup> Wood and Thompson, *Education Finance Law*, 8.

<sup>150</sup> Berne and Stiefel, *The Measurement of Equity*, 13.

<sup>151</sup> Wood and Thompson, *Education Finance Law*, 39-40.

<sup>152</sup> *Ibid.*

<sup>153</sup> Berne and Stiefel, *The Measurement of Equity*, 13.

<sup>154</sup> Frank W. Cyr, Arvid J. Burke, Paul R. Mort, *Paying for Our Public Schools* (Scranton, PA.: International Textbook Company 1938), 26.

<sup>155</sup> *Ibid.*

<sup>156</sup> Wood and Thompson, *Education Finance Law*, 9.

<sup>157</sup> Thompson, Wood, and Honeyman, *Fiscal Leadership*, 37. see also 70 n. 74.

<sup>158</sup> *Serrano v. Priest*, 487 P.2d 1241 (Cal. 1971).

<sup>159</sup> Berne and Stiefel, *Concepts of School Finance Equity*, 18. For a definition of ex ante and ex post, see Chapter 1. Scholars also had believed that the goal of school finance reform initially was to be ex ante fiscal neutrality (See, Coons, Clune, and Sugarman, *Private Wealth and Public Education*).

<sup>160</sup> James Coleman et al., *Equality of Educational Opportunity* (Washington, DC: Department of Health, Education, and Welfare, 1966).

<sup>161</sup> Christopher Jencks et al., *Inequality: A Reassessment of the Effect of Family and Schooling in America* (New York: Harper and Row 1972).

<sup>162</sup> Berne and Stiefel state that Jencks now believes that there may be evidence to support a positive effect of education on the disadvantaged students. See Berne and Stiefel, *Concepts of School Finance Equity*, 28 n. 16.

<sup>163</sup> Thompson, Wood, and Honeyman, *Fiscal Leadership*, 37-42. See also 70 nn., 75-78. Thompson, Wood, and Honeyman provide an in-depth discussion of the Effective Schools Movement.

<sup>164</sup> See, e.g., Hanushek, *Throwing Money at Schools*; Eric Hanushek, *The Impact of Differential Expenditures on School Performance*, *Educational Researcher*, 18 (1989): 45-65; Hanushek, *The Economics of Schooling*; Hanushek, *When School Finance Reform May Not Be a Good Policy*; Hanushek, *The Quest for Equalized Mediocrity*, in *Where Does the Money Go?*; King and MacPhail-Wilcox, *Unraveling the Production Equation*; Hedges, Laine, and Greenwald, *Does Money Matter?*; Laine, Greenwald, and Hedges, *Money Does Matter*, in *Where Does the Money Go?*; R. Greenwald, Larry V. Hedges and Richard D. Laine, *When Reinventing the Wheel is Not Necessary: A Case Study in the Use of Meta-Analysis in Education Finance*, *Journal of Education Finance* 20, no. 1 (1994): 1-20; Jim C. Fortune and John S. O Neil, *Production Function Analyses and the Study of Educational Funding Equity: A Methodological Critique*, *Journal of Education Finance* 20, no. 1 (1994): 21-46; Bruce S. Cooper, et al., *Making Money Matter in Education: A Micro-Financial Model for Determining School-Level Allocations, Efficiency, and Productivity*, *Journal of Education Finance* 20, no. 1 (1994): 66-87; William T. Hartman, *District Spending Disparities Revisited*, *Journal of Education Finance* 20, no. 1 (1994): 88-106; Debra A. Verstegen, *Efficiency and Equity in the Provision and Reform of American Schooling*, *Journal of Education Finance* 20, no. 1 (1994): 107-131; Carl M.-S. Lee, I-Ming W. Aron and Robert H. Aron, *An Analysis of Michigan Educational Assessment Program (MEAP) Scores and School District Revenues and Expenditures*, *Journal of Education Finance* 13, no. 4 (1988): 496-511. T. Stephen Childs and Charol Shakeshaft, *A Meta-Analysis of Research on the Relationship Between Education Expenditures and Student Achievement*, *Journal of Education Finance* 12, no. 2 (1986), 249-263; and Bettye MacPhail-Wilcox and Richard King, *Production Functions Revisited in the Context of Educational Reform*, *Journal of Educational Finance* 12, no. 2 (1986): 191-222. These studies have debated the impact that resources have had on achievement in public schools. Hanushek continues to argue for no significant relationship between resources and learning while others support the view that resources have a strong relationship to student achievement.

<sup>165</sup> Thompson, Wood, and Honeyman present a balanced summary to the production function debate: First, the data are not conclusive, but the findings are sufficiently persuasive to at least presume a *deleterious effect* (emphasis in original) of insufficient resources on achievement. Second, in the absence of absolute covariance, there is sufficient data to compel reasonable people to err in favor of the lesser evil....it is far wiser to spend millions of dollars on an imprecise relationship than to spend hundreds of millions in a vain attempt to clean up what social consequences of failing to educate well. Third, all lines of research form a plea for increased investigation into the factors that make a difference in achievement. Fourth, to at least some degree[,] the outcome appears to point the clear path toward discovering more about how resources are distributed, rather than on how much is available. (Thompson, Wood, and Honeyman, *Fiscal Leadership*, 42).

<sup>166</sup> Berne and Stiefel, *Concepts of School Finance Equity*, 15.

<sup>167</sup> Wise *Rich Schools, Poor Schools*.

<sup>168</sup> Wise's arguments were utilized in the *Serrano I* decision. See *Serrano v. Priest*, 487 P.2d 1241, 1255-59 for a thorough discussion of the equal protection jurisprudence theory.

<sup>169</sup> Minorini and Sugarman, *School Finance Litigation*, 36.

<sup>170</sup> Berne and Stiefel discuss the problem with viewing taxpayer equity in education finance. They state that

The school finance and public finance conceptions of taxpayer equity do not always conform to one another. From a school finance perspective, a system would be judged

fair to taxpayers if every taxpayer was assured that a given tax rate would translate into the same amount of spending per pupil regardless of where the taxpayer lived. From a public finance perspective, on the other hand, a system would be judged fair to taxpayers on the basis of either the ability to pay or the benefit principle (Berne and L. Stiefel, *Concepts of School Finance Equity*, 10).

<sup>171</sup> Berne and Stiefel also provide some insight into the complexity of viewing student equity:

Some definitions of equity focus on inputs--labor, equipment, capital--in their dollar or raw units forms. That is, the ideal is to have these inputs distributed equitably, which is not necessarily equal. Sometimes the discussions ends here with an assertion that it is inputs, measured in dollars, that should be the focus of school finance equity. In other cases the idea of equity goes beyond inputs to something further along in the education production process....More recently, attention is turning to outputs...and outcomes...that are variously related to what schools do (Berne and Stiefel, *Concepts of School Finance Equity*, 11,12).

<sup>172</sup> See Horowitz *Unseparate but Unequal*; Horowitz and Neitring (1968) *Equal Protection in Public Education*.

<sup>173</sup> Minorini and Sugarman describe the early difficulty of need-based arguments, which led to the loss of early cases in the 1960s by plaintiffs. They state that

A central difficulty with the needs-based claim existed, however. How much spending does any child, or class of children, need? If need implies a level of school spending necessary to achieve some sort of educational outcome standard, then exactly what outcome? And if need is not about outcomes, what does it involve that a court could address? Would a court order whatever spending education experts thought is needed? But which experts? and needed for what? In other words, the problem lay in identifying an acceptable constitutional principle for courts to announce that contained the certainty and clarity that seemed necessary (at least at the time) before the claimants had any hopes of winning an equal protection case (Minorini and Sugarman, *School Finance Litigation*, 37).

<sup>174</sup> John E. Coons, William H. Clune and Stephen D. Sugarman, *Educational Opportunity: A Workable Constitutional Test for State Financial Structures*, *California Law Review* 57 (1969): 305-421; and Coons, Clune and Sugarman, *Private Wealth and Public Education*.

<sup>175</sup> Minorini and Sugarman, *School Finance Litigation*, 37.

<sup>176</sup> *Ibid.*

<sup>177</sup> Coons, Clune and Sugarman, *Private Wealth and Public Education*, 202.

<sup>178</sup> Berne and Stiefel, *Concepts of School Finance Equity*, 17. Minorini and Sugarman further clarify the flexibility of Coons and associates DPE program. They write

To demonstrate how a new school finance scheme could meet their principle of fiscal neutrality and yet tolerate geographically different spending levels, Coons and his colleagues developed a mechanism that they called district power equalizing. That system sought, through the use of state aid formula, to make every district effectively equally wealthy. Once that was assured, the state might permit a district to tax as high or low as they wished; the resulting geographic inequalities would be allowed under Proposition I because they would reflect differences in tax effort, not wealth. Coons and his colleagues emphasized this because they recognized the traditional importance of local control over education and anticipated the reluctance of the federal judiciary to override that control (Minorini and Sugarman, *School Finance Litigation*, 38).

<sup>179</sup> *Ibid.*, 201-02.

<sup>180</sup> *Serrano I*, 487 P.2d 1241 (Cal. 1971).

<sup>181</sup> *Rodriguez v. San Antonio*, 337 F.Supp. 280 (W.D. Tex. 1971).

<sup>182</sup> Berne and Stiefel, Concepts of School Finance Equity, 18.

<sup>183</sup> National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform* (Washington, DC: U.S. Government Printing Office 1983).

<sup>184</sup> Berne and Stiefel, Concepts of School Finance Equity, 22.

<sup>185</sup> *Ibid.*

<sup>186</sup> Minorini and Sugarman, *Educational Adequacy*, 188.

<sup>187</sup> John F. Jennings, School Finance Reform: The Challenge Facing Connecticut, *Journal of Education Finance* 4, no. 4 (1979): 395-414; Harold Sunderman and Reg Hinely, Toward Equality of Educational Opportunity: A Case Study and Projection, *Journal of Education Finance* 4, no. 4 (1979): 436-450; Richard W. Campbell, Education Governance: Political Turbulence and School Finance Reform in New Jersey, *Journal of Education Finance* 5, no. 2 (1979): 149-172; David E. Weischadle, New Jersey: A Case Study in the Politics of Public School Finance, *Journal of Education Finance* 3, no. 2 (1979): 259-264; Margaret E. Goertz and Janet Hannigan, Delivering a Thorough and Efficient Education in New Jersey: The Impact of an Expanded Arena of Policy Making, *Journal of Education Finance* 4, no. 1 (1978): 46-64; John B. Mockler and Gerald Hayward, School Finance in California: Pre-Serrano to the Present, *Journal of Education Finance* 3, no. 4 (1978): 386-401; Carvin L. Brown, The Adequate Program for Education in Georgia, *Journal of Education Finance* 3, no. 4 (1978): 402-411; G. Alan Hickrod and Ben C. Hubbard, The 1973 School Finance Reform in Illinois: Quo Jure? Quo Vadis? *Journal of Education Finance* 3, no. 4 (1978): 412-431; Richard E. Byron, Equalization of Educational Opportunity in Indiana, *Journal of Education Finance* 3, no. 4 (1978): 432-442; Arnold Guess, Financing Kentucky's Elementary Secondary Education Program, *Journal of Education Finance* 3, no. 4 (1978): 443-449; Michael J. Lovett and Van D. Mueller, Equity and Equalization in Minnesota School Finance, *Journal of Education Finance* 3, no. 4 (1978): 450-464; Alan Odden, Missouri's New School Finance Structure, *Journal of Education Finance* 3, no. 4 (1978): 465-475; C. Cale Hudson, An Overview of School Finance in Nebraska, *Journal of Education Finance* 3, no. 4 (1978): 476-486; Russell Harris, Act 59 and the Prospects for Reforming School Finance in Pennsylvania, *Journal of Education Finance* 3, no. 4 (1978): 487-501; Cynthia V. L. Ward, State Support for Rhode Island Public School Operations: An Explanation and Critique, *Journal of Education Finance* 3, no. 4 (1978): 502-514; Philip T. Kelly, South Carolina's New School Finance Law, *Journal of Education Finance* 3, no. 4 (1978): 515-523; Richard G. Salmon and Ralph J. Shtowell, Virginia School Finance Reform: Status Quo Maintained, *Journal of Education Finance* 3, no. 4 (1978): 524-535; Terry G. Geske and Richard A. Rossmiller, The Politics of School Finance Reform in Wisconsin, *Journal of Education Finance* 2, no. 4 (1977): 513-532; Floyd Skloot, School Finance Reform in a Time of Fiscal Stringency: The Illinois Situation, *Journal of Education Finance* 2, no. 4 (1977): 533-542; Thomas L. Johns, 1975 School Aid Legislation: A Look at Three States, *Journal of Education Finance* 1, no. 3 (1976): 397-406; Jo Ann Krueger, The Politics of School Finance: New Mexico Passes a State Funding Formula, *Journal of Education Finance* 1, no. 1 (1975): 86-95.

<sup>188</sup> Robert Berne and Leanna Stiefel, Concepts of Equity, Robert Berne and Leanna Stiefel, Taxpayer Equity in School Finance Reform: The School Finance and Public Finance Perspectives, *Journal of Education Finance* 5, no. 1 (1979): 36-54; Robert Bern and Leanna Stiefel, The Equity of School Finance Systems Over Time: The Value Judgments Inherent in Evaluation, *Education Administration Quarterly* 15, no. 1 (1979): 14-34; Jay Moskowitz and Joel D. Sherman, School Finance Litigation: The Use of Data Analysis, *Journal of Education Finance* 4, no. 3 (1979): 322-332; Kenneth V. Greene, The Equalizing Effects of District Power Equalization: A Review of the Economics Literature, *Journal of Education Finance* 5, no. 2 (Fall, 1979): 187-214; Peter Jargowsky, Jay Moskowitz, and Judy Sinkin, School Finance Reform: Decoding the Simulation Maze, *Journal of Education Finance* 3, no. 2 (1979): 199-213; Thomas L. Johns and Dexter A. Magers, Measuring the Equity of State School Finance Programs, *Journal of Education Finance* 3, no. 4 (1978): 373-385; John E. Coons, Can Education Be Equal and Excellent? *Journal of Education Finance* 4, no. 2 (1978): 147-157; Susan Fuhrman, The

Politics and Process of School Finance Reform, *Journal of Education Finance* 4, no. 2 (1978): 158-178; Lawrence L. Brown III, Alan L. Ginsburg, J. Neil Killalea, Richard A. Rosthal, Esther O. Tron, School Finance Reform in the Seventies: Achievements and Failures, *Journal of Education Finance* 4, no. 2 (1978): 195-212; Betsy Levin, New Legal Challenges in Educational Finance, *Education Finance* 3, no. 1 (1977): 54-69; Martha M. McCarthy, What Happened to Equal Protection of the Laws? *Journal of Education Finance* 2, no. 1 (1976): 88-98; Frederic C. Menz and Arnold H. Raphaelson, Some Issues in Equalizing Educational Spending, *Journal of Education Finance* 2, no. 1 (1976): 99-109; Gilbert E. Bursley, Political Strategies and Fiscal Ramifications.

<sup>189</sup> Johns and Magers, Measuring the Equity of State School Finance Programs, 373.

<sup>190</sup> *Ibid.*, 373-385.

<sup>191</sup> *Ibid.*, 378.

<sup>192</sup> Moskowitz and Sherman, School Finance Litigation, 322-332.

<sup>193</sup> *Ibid.*, 325.

<sup>194</sup> See note 7.

<sup>195</sup> Berne and Stiefel, Concepts of Equity : 109-132.

<sup>196</sup> Berne and Stiefel, *The Measurement of Equity*.

<sup>197</sup> *Ibid.*, 1.

<sup>198</sup> Berne and Stiefel, Concepts of Equity, 110.

<sup>199</sup> *Ibid.*, 111.

<sup>200</sup> *Ibid.*, 111-112.

<sup>201</sup> *Ibid.*, 114-115.

<sup>202</sup> *Ibid.*, 113 n. 1. (Berne and Stiefel refer to an earlier work that related to addressing the question of value judgments.

<sup>203</sup> *Ibid.*, 117.

<sup>204</sup> *Ibid.*

<sup>205</sup> *Ibid.*

<sup>206</sup> *Ibid.*, 118-119.

<sup>207</sup> Lawrence L. Brown III et al., *School Finance Reform in the Seventies: Achievements and Failures*, a report for the Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health, Education and Welfare, and Killalea Associates, Inc., September 1977, 57-58.

<sup>208</sup> Stephen J. Carroll, Millicent Cox and William Lisowski, *The Search for Equity in School Finance: Results From Five States* (Santa Monica, CA: The Rand Corporation, 1979).

<sup>209</sup> Alan G. Hickrod, Ramesh B. Chaudhari, and Ben C. Hubbard, *Reformation and Counter-reformation in Illinois School Finance: 1973-1981* (Normal, IL: Center for the Study of Education Finance, 1981), 14.

<sup>210</sup> Berne and Stiefel, Concepts of Equity, 38.

- <sup>211</sup> Martin Feldstein, Wealth Neutrality and Local Choice in Education, *American Economic Review* 65 (March 1975): 75-89.
- <sup>212</sup> David Stern, Effects of Alternative State Aid Formulas on the Distribution of Public School Expenditures in Massachusetts, *Review of Economics and Statistics* 55 (February 1973): 91-97; Helen F. Ladd, Local Education Expenditures, Fiscal Capacity and the Composition of the Property Tax Base, *National Tax Journal* 28 (June 1975): 145-158; Helen F. Ladd, State-Wide Taxation of Commercial and Industrial Property for Education, *National Tax Journal* 29 (June 1976): 143-154.
- <sup>213</sup> George Peterson, Voter Demand for Public School Expenditures, in *Public Needs and Private Behavior in Metropolitan Areas*, ed. John Jackson (Cambridge: Harvard University Press, 1975).
- <sup>214</sup> Stephen M. Barro, The Impact of Intergovernmental Aid on Public School Spending (Ph.D. diss., Stanford University, 1974).
- <sup>215</sup> W. Norton Grubb and Stephen Michelson, *States and Schools* (Lexington, Mass: D.C. Heath, 1974).
- <sup>216</sup> Robert Inman, Optimal Fiscal Reform of Metropolitan Schools: Some Simulation Results, *American Economic Review* 68 (March 1978): 107-122; Robert Inman and David Wolf, SOFA: Assimilation Program for Predicting and Evaluating the Policy Effects of Grants-in-Aid, *Socio-Economic Planning Sciences* 10 (June 1976): 77-88.
- <sup>217</sup> Robert Berne, Equity Issues in School Finance, *Journal of Education Finance* 14, no. 2 (1988): 159-80, 177.
- <sup>218</sup> See George P. Richardson and Robert E. Lamitie, Improving Connecticut School Aid: A Case Study with Model-Based Policy Analysis, *Journal of Education Finance* 15, no. 2 (1989): 169-188; Gary L. Peveely and John R. Ray, Equity as Determined by Locally Funded Teaching Positions in Tennessee Schools, *Journal of Education Finance* 15, no. 2 (1989): 189-204; Deborah A. Versteegen, and Richard G. Salmon, The Conceptualization and Measurement of Equity in School Finance in Virginia, *Journal of Education Finance* 15, no. 2 (1989): 205-228; C. Philip Kearney and Li-Ju Chen, Measuring Equity in Michigan School Finance: A Further Look, *Journal of Education Finance* 14, no. 3 (1989): 319-367; Elchanan Cohn and Melinda S. Smith, A Decade of Improvement in Wealth Neutrality: A Study of School Finance Equity in South Carolina, 1977-1986, *Journal of Education Finance* 14, no. 3 (1989): 380-389; James Gordon Ward, In Pursuit of Equity and Adequacy: Reforming School Finance in Illinois, *Journal of Education Finance* 12, no. 1 (1987): 107-120; Richard Meckley, Funding Impediments to Education Reform in West Virginia, *Journal of Education Finance* 12, no. 2 (1986): 295-297; James Gordon Ward, Consensus Politics and Local Control: The 1985 Illinois Education Reform Package, *Journal of Education Finance* 11, no. 3 (1986): 377-384; Bettye MacPhail-Wilcox, Fiscal Equity for Public Schools in a Nonreform State: North Carolina, 1975 to 1983, *Journal of Education Finance* 10, no. 4 (1985): 417-425; Edward Morgan, Obstacles to Educational Equity: State Reform and Local Response in Massachusetts, 1978-1983, *Journal of Education Finance* 10, no. 4 (1985): 441-459; Donald Wickert, Some School Finance Issues Related to the Implementation of Serrano and Proposition 13, *Journal of Education Finance* 10, no. 4 (1985): 535-542; Raymond L. Lows, Elements of Inequity in Illinois School Finance, *Journal of Education Finance* 11, no. 1 (1985): 40-55; Alan Hopeman, Education Finance Legislation in Minnesota in 1985, *Journal of Education Finance* 11, no. 1 (1985): 112-121; L. Roger Kirk, The South Carolina Educational Improvement Act of 1984, *Journal of Education Finance* 11, no. 1 (1985): 132-145; James L. Phelps and Michael F. Addonizio, Michigan Public School Finance: The Last Ten Years, *Journal of Education Finance* 9, no. 1 (1983): 5-16; George Alan Karnes Hickrod, Ramesh Baldeodas Chaudhari, and Benjamin Calloway Hubbard, The Decline and Fall of School Finance Reform in Illinois, *Journal of Education Finance* 9, no. 1 (1983): 17-38; Lars H. Rydell, Equity for Taxpayers and Equal Opportunity for Students in Maine, *Journal of Education Finance* 9, no. 1 (1983): 39-52; Kern Alexander and Lee Shiver, Equalization Among Florida School Districts, *Journal of Education Finance* 9, no. 1 (1983): 53-62; Richard A. King, Equalization in New Mexico School Finance, *Journal of Education Finance* 9, no. 1 (1983): 63-78; Mary Frase Williams, Small Change: Maryland's Progress Toward Greater School Finance Equity, *Journal of Education Finance* 9, no. 1 (1983): 97-115; John Augenblick and C. Kent McGuire, Changes in the



Equity of School Finance Systems in Oklahoma, Delaware, and Alaska, *Journal of Education Finance* 8, no. 4 (1983): 436-448; Joyce E. Kruprey and Alan Hopeman, Minnesota School Finance Equity, 1973-1982, *Journal of Education Finance* 8, no. 4 (1983): 490-501; Cynthia A. Cronk and Gary P. Johnson, An Equity Analysis of Pennsylvania's Basic Instruction Subsidy Program, 1977-80, *Journal of Education Finance* 8, no. 4 (1983): 502-510; Carla Edlefsen, Progress Toward Equity in Ohio, *Journal of Education Finance* 8, no. 4 (1983): 511-522; Harry M. Kaiser and Glenn L. Nelson, Inequality and the Minnesota Referendum Levy, *Journal of Education Finance* 8, no. 2 (1982): 152-169; G. Alan Hickrod, Ramesh B. Chaudhri, Virginia Lundeen, Progress Toward School Finance Equity Goals in Indiana, Iowa, and Illinois, *Journal of Education Finance* 6, no. 2 (1980): 176-200.

<sup>219</sup> See Woody Barwick, A Chronology of the Kentucky Case, *Journal of Education Finance* 15, no. 2 (1989): 136-141; Kern Alexander et al., Constitutional Intent: System, Common, and Efficient as Terms of Art, *Journal of Education Finance* 15, no. 2 (1989): 142-162; J. L. Flanagan, West Virginia's Financial Dilemma: The Ideal School System in the Real World, *Journal of Education Finance* 15, no. 2 (1989): 229-243; Nancy Stevens, Texas School Finance System: New Legislation, *Journal of Education Finance* 15, no. 2 (1989): 269-277; Margaret D. Smith and Perry A. Zirkel, *Pauley v. Kelly*: School Finances and Facilities in West Virginia, *Journal of Education Finance* 13, no. 3 (1988): 264-273; Wickert, Some School Finance Issues; Margaret E. Goertz, School Finance in New Jersey: A Decade After Robinson v. Cahill, *Journal of Education Finance* 8, no. 4 (1983): 475-489; Richard Meckley, Education Finance: Legal Bombshell in West Virginia, *Journal of Education Finance* 8, no. 3 (1983): 409-413; Harry M. Kaiser and Glenn L. Nelson, Inequality and the Minnesota Referendum Levy; Martha M. McCarthy, The Levittown Case, *Journal of Education Finance* 8, no. 1 (1982): 101-105; Richard F. Meckley, Court Grants Education a Preferred Funding Status in West Virginia, *Journal of Education Finance* 7, no. 2 (1982): 227-229; Richard H. Goodman, Rich Town, Poor Town: School Finance Lawsuit Filed in New Hampshire, *Journal of Education Finance* 7, no. 4 (1982): 484-487; Deborah A. Versteegen, Equity in State Education Finance: A Response to Rodriguez, *Journal of Education Finance* 12, no. 3 (1981): 315-330.

<sup>220</sup> See Julie K. Underwood, Changing Equal Protection Analyses in Finance Equity Litigation, *Journal of Education Finance* 14, no. 3 (1989): 413-425; Robert Berne, Equity Issues in School Finance; James Gordon Ward, The Political Ecology of Reform: American Public School Finance in the 1970s and 1980s, *Journal of Education Finance* 14, no. 2 (1988): 181-199; William E. Camp and David C. Thompson, School Finance Litigation: Legal Issues and Politics of Reform, *Journal of Education Finance* 14, no. 2 (1988): 221-238; James Gordon Ward and William E. Camp, An Analytic View of Two Decades of Reform in School Finance Some Comments, *Journal of Education Finance* 14, no. 1 (1988): 1-6; Mary Jane Connelly and Jack McGee, School Finance Litigation of the 1980s, *Journal of Education Finance* 12, no. 4 (1987): 578-591; M. David Alexander, Mary Jane Connelly, and Richard G. Salmon, An Update In Public School Finance Litigation, *Journal of Education Finance* 10, no. 2 (1984): 135-149; Michael N. Nwabuogu, On the Meaning and Application of Equal Educational Opportunity: A Review Article, *Journal of Education Finance* 10, no. 1 (1984): 64-82; George Alan Hickrod and Margaret E. Goertz, Introduction: Evaluating the School Finance Reforms of the 1970s and Early 1980s, *Journal of Education Finance* 8, no. 4 (1983): 415-418; Robert Berne and Leanna Stiefel, Changes in School Finance Equity: A National Perspective, *Journal of Education Finance* 8, no. 4 (1983): 419-435; Kern Alexander, The Potential of Substantive Due Process for School Finance Litigation, *Journal of Education Finance* 6, no. 4 (1981): 456-470; F. Gregory Hayden, An Algorithm for Deriving Fiscal Equity Indicators of a School Financing Structure, *Journal of Education Finance* 6, no. 1 (1980): 94-111.

<sup>221</sup> See Dan Heinold, Impact of Federal Monies on Equity Among States in K-12 Public School Finance, *Journal of Education Finance* 8, no. 4 (1983): 461-474; Orlando F. Furno, State Equalization Plans Under Section 842, *Journal of Education Finance* 6, no. 3 (1981): 375-386; Cohn and Smith, A Decade of Improvement in Wealth Neutrality; Ward, In Pursuit of Equity and Adequacy; Ward, Consensus Politics and Local Control; MacPhail-Wilcox, Fiscal Equity for Public Schools in a Nonreform State; Hopeman, Education Finance Legislation in Minnesota in 1985; Kirk, The South Carolina Educational Improvement Act of 1984; Alexander and Shiver, Equalization Among Florida School Districts.



- <sup>222</sup> Myron Schwartz and Jay Moskowitz, *Fiscal Equity in the United States, 1984-85* (Washington, DC: Decision Resources Corporation, 1988).
- <sup>223</sup> Berne, Equity Issues, 177.
- <sup>224</sup> Stephen M. Barro, *School Finance Equity: Research in the 1980s and the Current State of the Art*, (Washington, DC: Decision Resources Corporation, 1987).
- <sup>225</sup> Berne, Equity Issues, 177.
- <sup>226</sup> Berne and Stiefel, *The Measurement of School Finance*.
- <sup>227</sup> *Ibid.*, 288-290.
- <sup>228</sup> National Commission on Excellence in Education, *A Nation at Risk*.
- <sup>229</sup> Berne and Stiefel, Concepts of School Finance Equity, 21.
- <sup>230</sup> Melissa C. Carr and Susan H. Fuhrman, The Politics of School Finance in the 1990s, in *Equity and Adequacy*.
- <sup>231</sup> See, e.g., Task Force of the Education Commission of the States, *Action for Excellence: A Comprehensive Plan to Improve Our Nation's Schools*, chaired by Governor James Hunt (1983); Education Equality Project-The College Board, *Academic Preparation For College: what Students Need to Know and Be Able to Do*, (1983); Twentieth-Century Fund Task Force on Federal Elementary and Secondary Education Policy, *Making the Grade*, (1983); Sarah Lawrence Lightfoot, *The Good High School: Portraits of Character and Culture*, (New York: Basic Books, 1983); The Carnegie Foundation for the Advancement of Teaching, *High School: A Report on Secondary Education in America*, by Earnest L. Boyer (New York: Harper & Row, 1983); John Goodlad, *A Place Called School*, (New York: McGraw-Hill, 1984); and TheodoreSizer, *Horace's Compromise: The Dilemma of the American High School*, (Boston: Houghton Mifflin, 1984). These are a partial listing of the plethora of special reports on academic excellence.
- <sup>232</sup> Carr and Fuhrman, The Politics of School Finance, 148-49.
- <sup>233</sup> Richard Elmore and Milbrey Wallin McLaughlin, *Steady Work: Policy, Practice, and the Reform of American Education* (Santa Monica, CA: Rand, 1988), 53.
- <sup>234</sup> See, e.g., John Dayton, An Examination of Judicial Treatment of Rural Schools in Public School Funding Equity Litigation, *Journal of Education Finance* 24, no. 2 (1998): 179-205; Verstegen, Efficiency and Equity; Deborah A. Verstegen, Financing Education Reform: Where Did All the Money Go? *Journal of Education Finance* 19, no. 1 (1993): 1-35; Neil D. Theobald and Lawrence O. Picus, Living with Equal Amounts of Less: Experiences of States with Primarily State-Funded School Systems, *Education Finance* 17, no. 1 (1991): 1-6; Catherine C. Sielke, Michigan School Facilities, Equity Issues, and Voter Response to Bond Issues Following Finance Reform, *Journal of Education Finance* 23, no. 3 (1998): 309-322; Jerry C. Fastrup, Fiscal Equalization and Access to Educational Resources in the New England States, *Journal of Education Finance* 22, no. 4 (1997): 368-393; Henry Prince, Michigan's School Finance Reform: Initial Pupil-Equity Results, *Journal of Education Finance* 22, no. 4 (1997): 394-409; David L. Colton, The Weighting Game: Two Decades of Fiscal Neutrality in New Mexico, *Journal of Education Finance* 22, no. 1 (1996): 28-59; Allan Odden, Carolyn Busch and Linda Hertert, The Intricacies of Reforming School Finance and Providing Property Tax Relief in Wisconsin, *Journal of Education Finance* 21, no. 3 (1996): 321-342; Deborah A. Verstegen, Concepts and Measures of Fiscal Inequality: A New Approach and Effects of Five States, *Journal of Education Finance* 22, no. 2 (1996): 145-16; D. Frank Vinik, The Contrasting Politics of Remedy: The Alabama and Kentucky School Equity Funding Suits, *Journal of Education Finance* 22, no. 1 (1996): 60-87; Preston Green, Equity, Adequacy and Efficiency in New York City School Finance Litigation, *Journal of Education Finance* 22, no. 1 (1996): 88-113; Theodore J. Meyers, Thomas C. Valesky and Marilyn A.

Hirth, K-12 Education Funding in Tennessee: Equity Now-Adequacy Coming, *Journal of Education Finance* 20, no. 4 (1995): 394-409; Michael F. Addonizio, C. Philip Kearney and Henry J. Prince, Michigan's High Wire Act, *Journal of Education Finance* 20, no. 3 (1995): 235-269; Marilyn A. Hirth, A Multistate Analysis of School Finance Issues and Equity Trends in Indiana, Illinois, and Michigan, 1982-1992: The Implications for 21st Century School Finance Policies, *Journal of Education Finance* 20, no. 2 (1994): 163-190; Carolyn E. Johnson and Robert G. Lehnen, Reforming Indiana's School Finance Formula, 1973-1990: A Case of Unanticipated Outcomes, *Journal of Education Finance* 18, no. 3 (1993): 264-280; Lawrence C. Walters and Mark A. Freeman, An Assessment of Educational Spending Equity in Utah Using Data Envelopment Analysis, *Journal of Education Finance* 19, no. 2 (1993): 122-156; David C. Thompson, David S. Honeyman, and R. Craig Wood, The Kansas School District Equalization Act: A Study of Fiscal Equity of Funding Categories, *Journal of Education Finance* 19, no. 1 (1993): 36-68; Allan Odden, School Finance Reform in Kentucky, New Jersey and Texas, *Journal of Education Finance* 18, no. 4 (1993): 293-317; Margaret E. Goertz, School Finance Reform in New Jersey: The Saga Continues, *Journal of Education Finance* 18, no. 4 (1993): 346-365; Lawrence O. Picus and Linda Hertert, Three Strikes and You're Out: Texas School Finance after Edgewood III, *Journal of Education Finance* 18, no. 4 (1993): 366-389; Stephen J. Goetz and David L. Debertin, Rural Areas and Education Reform in Kentucky: An Early Assessment of Revenue Equalization, *Journal of Education Finance* 18, no. 2 (1992): 163-179; John A. Dively and G. Alan Hickrod, Update of Selected States School Equity Funding Litigation and the Boxscore, *Journal of Education Finance* 17, no. 4 (1992): 352-363; Gary Johnson and M. George Pillianayagam, A Longitudinal Equity Study of Ohio's School Finance System: 1980-1989, *Journal of Education Finance* 17, no. 4 (1991): 60-82; Faith E. Crampton, The Measurement of Efficiency and Equity in Oregon School Finance: The Beginning Stages, *Journal of Education Finance* 16, no. 3 (1991): 348-359; Deborah Versteegen and Richard Salmon, Assessing Fiscal Equity in Virginia: Cross-Time Comparisons, *Journal of Education Finance* 16, no. 4 (1991): 417-430; Richard L. Henderson, An Analysis of Selected School Finance Litigation and Its Impact Upon State Education Legislation, *Journal of Education Finance* 17, no. 2 (1991): 193-214; Robert N. White, Indiana Public School State Formula Grants-Fair or Unfair? *Journal of Education Finance* 17, no. 2 (1991): 215-223; Patricia Ritchey Sample and William T. Hartman, An Equity Simulation of Pennsylvania's School Finance System, *Journal of Education Finance* 16, no. 1 (1990): 49-69; R. Craig Wood, David S. Honeyman and Verne Bryers, Equity in Indiana School Finance: A Decade of local Levy Property Tax Restrictions, *Journal of Education Finance* 16, no. 1 (1990): 83-92; Maja B. Weidmann and Lloyd E. Frohreich, Expenditures in Wisconsin School Districts: A Comparative Analysis of Zero-Aid and Positive-Aid Districts, *Journal of Education Finance* 16, no. 1 (1990): 93-103; Faith E. Crampton, Adequacy and Stability in Oregon School Finance, *Journal of Education Finance* 15, no. 3 (1990): 351-375; and Billy D. Walker and John D. Thompson, Special Report: The Texas Supreme Court and Edgewood I.S.D. v. Kirby, *Journal of Education Finance* 15, no. 3 (1990): 414-428.

<sup>235</sup> Berne and Stiefel, Concepts of School Finance Equity, 22.

<sup>236</sup> James W. Guthrie and Richard Rothstein, Enabling Adequacy to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements, in *Equity and Adequacy*, 211-212.

<sup>237</sup> *Ibid.*, 214. See also Underwood, School Finance Adequacy; Mark S. Grossman, Oklahoma School Finance Litigation: Shifting From Equity to Adequacy, U. Mich. J.L. Reform 28 (1995): 521-558; Martha I. Morgan, Adam S. Cohen, and Helen Hershkoff, Establishing Education Program Inadequacy: The Alabama Example, U. Mich. J.L. Reform 28 (1995): 559-598; C. Scott Trimble and Andrew C. Forsaith, Achieving Equity and Excellence in Kentucky Education, U. Mich. J.L. Reform 28 (1995): 599-637; William H. Clune, Accelerated Education as a Remedy for High-poverty Schools, U. Mich. J.L. Reform 28 (1995): 481-520; William E. Thro, Judicial Analysis During the Third Wave of School Finance Litigation: The Massachusetts Decision as a Model, *B.C.L. Rev.* 35 (1990): 597-638; Heise, State Constitutions; Enrich, Leaving Equality Behind.

<sup>238</sup> Guthrie and Rothstein, Enabling Adequacy to Achieve Reality, 214.

<sup>239</sup> William H. Clune, Accelerated Education, 481.

<sup>240</sup> Julie K. Underwood, School Finance Adequacy.

<sup>241</sup> *Ibid.*, 498.

<sup>242</sup> *Ibid.*, 518.

<sup>243</sup> *Ibid.*, 518-519.

<sup>244</sup> See, e.g., Minorini and Sugarman, Educational Adequacy, Guthrie and Rothstein, Enabling Adequacy to Achieve Reality, and Berne and Stiefel, Concepts of School Finance Equity, and Deborah A. Verstegen, Efficiency and Equity.

<sup>245</sup> Berne and Stiefel, Concepts of School Finance Equity, 22-24.

<sup>246</sup> Guthrie and Rothstein, Enabling Adequacy to Achieve Reality, 215.

<sup>247</sup> For a negative analysis of the effect of resources on educational achievement, see Hanushek, Throwing Money at Schools; Hanushek, When School Finance Reform May Not Be a Good Policy; Hanushek, The Quest for Equalized Mediocrity; in *Where Does the Money Go?*; King and MacPhail-Wilcox, Unraveling the Production Equation. For positive analysis of the effect of resources on education achievement, see Hedges, Laine, and Greenwald, Does Money Matter?; Laine, Greenwald, and Hedges, Money Does Matter, *Where Does the Money Go?*

<sup>248</sup> See note 18.

<sup>249</sup> Picus and Wattenbarger, eds., *Where Does the Money Go?*

<sup>250</sup> Hanushek, Equalized Mediocrity, 32.

<sup>251</sup> *Ibid.*, 33.

<sup>252</sup> Hedges, Laine, and Greenwald, Does Money Matter?

<sup>253</sup> Hedges, Laine, and Greenwald, Money Does Matter, 57.

<sup>254</sup> See, e.g., Addonizio, Kearney and Prince, Michigan's High Wire Act; Hirth, A Multistate Analysis of School Finance Issues and Equity Trends; Odden, School Finance Reform in Kentucky, New Jersey and Texas; Goertz, School Finance Reform in New Jersey; Picus and Hertert, Three Strikes and You're Out; Lawrence O. Picus, Cadillacs or Chevrolets?: The Evolution of State Control over School Finance in California, *Journal of Education Finance* 17, no. 4 (1991): 33-59; Johnson and Pillianayagam, A Longitudinal Equity Study of Ohio's School Finance System; Verstegen and Salmon, Assessing Fiscal Equity in Virginia; Henderson, An Analysis of Selected School Finance Litigation; Robert K. Goertz and Margaret E. Goertz, The Quality Education Act of 1990: New Jersey Responds to *Abbott v. Burke*, *Journal of Education Finance* 16, no. 1 (1990): 104-114; Walker and Thompson, Special Report: The Texas Supreme Court and Edgewood I.S.D. v. Kirby; Flanigan, West Virginia's Financial Dilemma; Stevens, Texas School Finance System; Smith and Zirkel, School Finances and Facilities in West Virginia; Hickrod and Goertz, Introduction: Evaluating the School Finance Reforms; Berne and Stiefel, Changes in School Finance Equity; Goertz, School Finance in New Jersey; Verstegen, Equity in State Education Finance; Hickrod, Chaudhari and Lundeen, Progress Toward School Finance Equity Goals in Indiana, Iowa, and Illinois; John F. Jennings, School Finance Reform; Goertz and Hannigan, Delivering a Thorough and Efficient Education in New Jersey; Mockler and Hayward, School Finance in California; Brown, The Adequate Program for Education in Georgia; Coons, Can Education Be Equal and Excellent?; Brown III et al., School Finance Reform in the Seventies.

<sup>255</sup> Lawrence O. Picus and Minaz B. Fazal, Why Do We Need to Know What Money Buys?: Research on Resource Allocation Patterns in Elementary and Secondary Schools, in *Where Does the Money Go?*

<sup>256</sup> *Ibid.*, 17-18.

<sup>257</sup> There are some opposing views to this theory of the correlation between increased resources and equity. See, e.g., Linda Hertert, Does Equal Funding for Districts Mean Equal Funding for Classroom Students?: Evidence from California, in *Where Does the Money Go?* Hertert found that money was equalized but the use of the funds did not provide similar educational services for every school within a district (83). However, Hertert's conclusions are not substantiated in the current literature, but they may prove problematic if further research supports her findings.

<sup>258</sup> Margaret E. Goertz and Gary Natriello, Court-Mandated School Finance Reform: What do the New Dollars Buy? in *Equity and Adequacy*.

<sup>259</sup> *Ibid.*, 111.

<sup>260</sup> *Ibid.*, 121.

<sup>261</sup> *Ibid.*, 126.

<sup>262</sup> *Ibid.*, 130.

<sup>263</sup> See, e.g., G. Alan Hickrod et al., The Effect of Constitutional Litigation on Educational Finance: A Preliminary Analysis, *Journal of Education Finance* 18, no. 2 (1992): 180-210; Linda Hertert, Carolyn Bush, and Allan Odden, School Finance Inequities Among the States: The Problem from a National Perspective, *Journal of Education Finance* 19, no. 3 (1994): 231-255; Mary L. Fulton, Courts Play a Bigger Role in Finance, *State Education Leader* 13, no. 2 (1994); Michael Heise, The Effect of Constitutional Litigation on Education Finance: More Preliminary Analyses and Modeling, *Journal of Education Finance* 21, no. 2 (1995): 195-216; Lauri Petermick, The Effect of Overturning Educational Funding Practices Through the State Courts on Overall Per Pupil Expenditures (paper presented at the annual meeting of the American Education Finance Association, Savannah, GA, March 1995); G. Alan Hickrod et al., The Effect of Constitutional Litigation on Educational Finance: A Further Analysis, in *Selected Papers in School Finance 1995* [database on-line]; available from <http://nces.gov/pubs97/97536-3.html>.

<sup>264</sup> Hickrod et al., A Preliminary Analysis.

<sup>265</sup> *Ibid.*, 189.

<sup>266</sup> Michael Heise, The Effect of Constitutional Litigation on Education Finance.

<sup>267</sup> Hickrod et al., A Further Analysis.

<sup>268</sup> *Ibid.*

<sup>269</sup> Lauri Petermick, The Effect of Overturning Educational Funding Practices.

<sup>270</sup> Hickrod et al., A Further Analysis.

<sup>271</sup> The purpose of testing the effect equity had on adequacy was to answer the question raised by some researchers who hypothesized that striving for equity would negatively affect adequacy. See, e.g., James Gordon Ward, Implementation and Monitoring of Judicial Mandates: An Interpretative Analysis, in *The Impacts of Litigation and Legislation on Public School Finance*, edited by Julie K. Underwood and Debra A. Verstegen (New York: Harper Row, 1990); and Theobald and Picus, Living with Equal Amounts of Less.

<sup>272</sup> William N. Evans, Sheila E. Murray, and Robert M. Schwab, The Impact of Court-Mandated School Finance Reform, in *Equity and Adequacy*, 72-98.

<sup>273</sup> The court-mandated reform variables consisted of two variables. One was Court Reform, which viewed revenues immediately after litigation. The other variable was Years After Court Reform, which viewed litigation's impact after a number of years. *Ibid.*, 87.

<sup>274</sup> The findings of this study recapitulated a study by the authors in 1998 (See Sheila E. Murray, William N. Evans, and Robert M. Schwab, Education Finance Reform and the Distribution of Education Resources, *American Economic Review* 88, no. 4 (1998): 789-812). In this study, the authors concluded that court-mandated education finance reform decreased within-state inequality. They also found that the same litigation reform also raised the spending at the bottom of the distribution within a state while leaving the top half little changed. They also found that states where education litigation had occurred tend to raise spending for education while leaving other state services unchanged. Thus, new taxes are necessary in many states to increase educational spending levels.

<sup>275</sup> See, e.g. F. Silva and J. Sonstelie, Did *Serrano* Cause a Decline in School Spending? *National Tax Journal* 47 (1995): 199-216; W. A. Fischel, Did *Serrano* Cause Proposition 13? *National Tax Journal* 42 (1989): 465-473; Versteegen, Financing Education Reform; Lawrence O. Picus, An Update on California School Finance 1992-93: What Does the Future Hold? *Journal of Education Finance* 18, no. 2 (1992): 142-162; Theobald and Picus, Living with Equal Amounts of Less. These studies primarily dealt with California and the disappointing effect that *Serrano* had on equity and spending. See, also, Fastrup, Fiscal Equalization and Access to Educational Resources; Addonizio, Kearney and Prince, Michigan's High Wire Act; Picus and Hertert, Three Strikes and You're Out.

<sup>276</sup> See notes 203, 212.

## CHAPTER 3 METHODOLOGY

The purpose of this study was to analyze the relationship between education finance litigation and per-student spending between the states to determine if litigation influenced spending within states that have had litigation. Spending in the study was defined as the per-student revenues (PSR)<sup>1</sup> for each state. The scope of the study included the years 1965 to 1996 because available enrollment and revenue data were only available for those years. Enrollment and revenues were used to create the PSR statistic used in the study. The analysis observed the differences between the PSR means for the various states before and after litigation had occurred in the state. All fifty states were used for the analysis,<sup>2</sup> and each state was placed into a typology modified after the typology developed by G. Alan Hickrod et al.<sup>3</sup> The analysis was divided into three separate questions:

**Increased revenues:** Did PSR increase overall for the fifty states during the thirty-two year period of education finance litigation? The first analysis focused on whether spending had increased for education over the thirty-two year time span of modern education finance litigation. The study focused on the differential growth in constant dollars of the overall revenues per state and category. The purpose for looking at the change in revenues was to determine if growth in revenues could be observed in constant dollars after adjusting for inflationary pressures. If growth in revenues in

constant dollars was not observable, then any observable increase in actual dollars would be attributable to inflation, and an analysis of the affect of litigation on those revenues would be improbable.

**Improved funding opportunities:** If PSR increased overall, did states that experienced litigation improve their PSR in relation to the national average? The second question focused on the observational differences in the PSR for each state during the thirty-two year time frame. Descriptive statistics were applied in the analysis to see if states where litigation occurred improved their relative position to the national average. Increases in PSR after litigation would indicate whether states that had experienced litigation had made some quantifiable gains in PSR compared to states that had not experienced litigation. Also, if states had experienced real growth of their PSR after litigation, then opportunities for increased spending for education would be available for each child within a state.

**Relationship to litigation:** If growth in PSR levels occurred, did the change in growth differ significantly between the various categories and was that change related to litigation? The last question required a statistical analysis utilizing a regression model. The purpose of the regression analysis was to determine if litigation affected the spending levels of each state differently. If litigation had affected spending levels, then the effect would certainly be evident in the slope of the spending levels between the various categories of states. The goal was to see if litigation correlated with increased PSR.

An archival study, using data procured from the National Center for Education Statistics,<sup>4</sup> was utilized to describe the three questions. Three conditions were viewed as

part of the analysis. The first condition was the growth of actual dollars of educational revenues after applying an inflation index. The second condition was each states relationship to the national average during the thirty-two year period of the data used for the study. The third condition was the comparison of the growth in revenues of states that had experienced litigation to states that had not experienced litigation utilizing a categorical variable.

### **Outcomes of Interest**

There were three possible outcomes tested for this study.

1. Spending for education had increased in constant dollars during the period of modern education finance litigation.
2. States that had experienced education finance litigation during the thirty-two year period of the study had appreciably changed their standing in relation to the national average for PSR.
3. States that had experienced education finance litigation on the state supreme court level during the thirty-two year period of the study had significantly increased their PSR levels in relation to states that had not experienced litigation on the supreme court level.

### **Assumptions**

The first two outcomes were tested to provide a basis for testing the third outcome. The first outcome assumed that constant dollars had increased over the thirty-two year period of the study for state PSR and that there was an observable differential growth in the average PSR for the three litigation categories of interest used in the analysis. If funding had not increased in constant dollars, then the impact of inflation on growth would certainly have contributed to any significant finding in the regression equation.



The second outcome of interest assumed that states that had litigation would demonstrate a change in their relationship to the national mean. This would be illustrated by those states showing a gain on the national mean and/or a changed percentile ranking in comparison to other states. Thus, states that had experienced litigation should have experienced increased PSR levels, which would have changed their relationships to the national average and/or changed their national ranking.

The third outcome assumed linearity between the dependent variable (PSR) and the two independent variables (category and enrollment). If litigation had an impact on increasing revenues for a state that had experienced litigation, then that impact would be demonstrable statistically. Further, the study employed a multiple linear regression model to explain the linear relationship between the variables. The study utilized scatter plots and residual plots in testing the four basic assumptions relating to multiple linear regression models:

1. The expected value of the error component  $\epsilon_i$  is 0 [ $E(\epsilon_i) = 0$ ], and the variance of the error component  $\epsilon_i$  is  $\sigma^2$  [ $V(\epsilon_i) = \sigma^2$ ], for  $i = 1, 2, \dots, n$ .
2. The error components are uncorrelated.
3.  $\beta_0, \beta_1, \dots, \beta_k$  are  $(k + 1)$  parameters, and  $x_{i,1}, x_{i,2}, \dots, x_{i,k}$  are known constants.
4. The error component  $\epsilon_i$  is normally distributed.<sup>5</sup>

Also, assumptions regarding the two independent (x) variables were as follows:

1. The x variables were nonstochastic: that is fixed and not random.
2. The x values were measured without error.<sup>6</sup>

The values used from the data for this example were robust to both of these assumptions.

## Data

The study used archival fiscal data to determine whether education finance litigation had an effect on education revenues for states that experienced litigation. Revenue data were compiled from the National Center for Education Statistics (NCES) annual digest yearbooks of national school data.<sup>7</sup> Data were compiled in tabular form and an analysis was conducted using the standard methodological practices currently found in the education finance literature. Enrollment data were compiled from the 1997 NCES annual yearbook on school finance.<sup>8</sup> The NCES is a research arm for the National Department of Education in Washington, DC. The purpose of the NCES is to collect data from all fifty states and territories into a national archive for use by government and private researchers. Thus, data collected for this study were from a central source and were considered to be uniform and reliable.<sup>9</sup> Further, the data years chosen for the analysis were from 1965 to 1996 because complete enrollment and revenue data were available for these years only.

Data were collected in four stages. First, enrollment for the states was compiled using information from NCES *Developments in School Finance*.<sup>10</sup> Enrollment figures were used instead of average daily attendance (ADA) figures to provide more uniformity. Figures for ADA include additions and drops during the school year, which could influence spending figures. Enrollment accounts for a single figure at the beginning of the school year. Since ADA would be calculated differently between the states, accurate analysis would be more problematic. Hence, a more consistent method of calculation is provided by the enrollment figures for each year. Next, revenues were compiled for state

and local figures and a total for state and local figures was used. Federal revenue sources were excluded from the data because the study was interested in the effect litigation had on state and local spending. Federal revenues would have artificially inflated the figures, possibly showing an effect that was attributable to factors other than litigation.<sup>11</sup> The third step calculated a per-student revenue (PSR) average for each state per year by dividing the total amount of state and local revenues by the enrollment. Thus a PSR was created for analysis to measure each state's relationship to the national mean before and after litigation, and to measure the difference in growth in PSR levels between the categories of comparison in the regression.

The last step in the development of these data was to categorize these data from the states, using a modified format from the typology employed by Hickrod et al.<sup>12</sup> All fifty states were used for the analysis. Data excluded United States territories because territories have different funding schemes than the fifty states used in the study, and education finance litigation was not a problem in those territories. Category I included states where the plaintiffs won at the state supreme court level and states where plaintiffs won at the supreme court level but further compliance litigation was also filed.<sup>13</sup> Category II included states where the plaintiffs lost at the supreme court level and further complaints have been filed, and/or further complaints also lost.<sup>14</sup> Category III included states where litigation is present, but there is no supreme court decision, and states where no litigation is present or the case is dormant.<sup>15</sup> States were placed in categories based upon litigation up to 1996 because the implementation of court decisions were often initiated after the current school year that the decision was finalized.<sup>16</sup> Hence, if litigation

had occurred for a state during 1996, the impact of that litigation would not be evident during the collection of revenues and enrollment figures prior to fall of 1996. Therefore, for uniformity, the study assumed that court decisions would provide a one-year lag time before implementation occurred.

### Procedure

Data were tabulated for each state for the period from 1965 to 1996 because complete revenue and enrollment data were available for only these years. After tabulating data for each state, the figures were then adjusted using a deflator index. The chosen deflator factor was the Consumer Price Index adjusted for the school year.<sup>17</sup> The Consumer Price Index adjusted for the academic school year was chosen because it was the only deflator index included in the NCES *Digest of Education Statistics* that covered the thirty-two years of the study. The means for each academic year for all fifty states were chosen to illustrate the difference in growth between actual and constant dollars, and dollars were adjusted according to 1970 dollars. The 1970 year was chosen as the base year because the modern period of education finance litigation began in 1971, so the study compared growth in constant dollars from the base year. The formula used to convert actual to constant dollars was as follows:

$$\text{Current Dollars} \times \frac{\text{Base Year CPI}}{\text{Current Year CPI}} = \text{Current dollars in base year dollars.}^{18}$$

A simple plot was used to illustrate the growth in constant dollars compared to actual dollars.

Next, descriptive statistics were used to demonstrate a state's relative position to the national mean for PSR for the years 1965, 1970, 1975, 1980, 1985, 1990, and 1996. The comparison covered the thirty-two year period for the study; hence, the years were representative of the overall population. PSR for each state was the raw score used as the benchmark of comparison for the two statistics. Each state's PSR average was displayed with the national ranking for each of the years in the analysis. The PSR national average was used for each year to establish a standard score for each state. The standard score provides the relative standing of a raw score in a distribution.<sup>19</sup> The formula used to develop the standard score for each state's PSR during the observed years was as follows:

$$\text{Standard Score} = \frac{\text{State PSR} - \text{National PSR}}{\text{Standard Deviation}}^{20}$$

Each state's ranking was then calculated based upon the overall distribution of scores for the year observed. The purpose for developing this step was to track the progress of each state over the thirty-two year period of the study. If litigation had an impact on increasing revenues into a state, then, theoretically, a state's PSR would show either a change in national ranking and/or a change in relation to the national mean for a given year.

Finally, a multiple regression was conducted using year, category, and enrollment as the independent variables and PSR as the dependent variable. A significant  $F_{.05, 1, 2}$  statistic was followed by post-hoc contrast designed to investigate the mean differences among the three groups and interactions. Data for the regression comprised each of the fifty states over the thirty-two year period of the study. The purpose for using 32 years in the comparison was to increase the number of data points for the regression analysis.

Larger data sets help to increase the power of a regression.<sup>21</sup> Population data, rather than sample data were used for all computations. The population consisted of all fifty states within the united states throughout the thirty-two year period of the study. Fiscal years 1965 though 1996 were selected for all calculations. Hence, there were 1600 data points for the analysis.

The variables of interest were the year of the PSR average, the category relating to the litigation and an enrollment variable. Year is a continuous variable, and although it does not provide information on any concrete influence on PSR, the assumption in the study was that PSR levels would rise each year; hence, year is included as a control variable. The category variable represents the litigation results from each state: Category I was states where plaintiffs won at the supreme court level; Category II was states where the plaintiffs lost at the supreme court level; and Category III was states where either litigation has not reached the supreme court level, or there was no litigation present. The enrollment variable was included in the analysis as an independent qualitative variable. The purpose for inclusion of the enrollment variable was twofold: first, Heise found that enrollment levels had an impact on spending within a state;<sup>22</sup> second, a preliminary analysis of the data indicated a correlation between student enrollment and PSR. Thus, the inclusion of a student enrollment variable in the analysis was necessary to account for a possible variable of influence other than litigation.

The last question of the study concerned the relationship between growth of PSR and litigation. If growth in constant dollars had occurred during the thirty-two year

period of the study, was this growth related to the litigation? The regression analysis would determine if litigation was indeed a factor in that growth.

### **Design**

The design for the study involved an analysis of plots and simple statistics for the first two research questions and a multiple regression model for the third question.

#### **Did PSR Levels Rise in Constant Dollars During the Thirty-two Year Period of the Study?**

The first question required answering whether PSR levels had actually increased in constant dollars during the thirty-two year period of the study. The national average for actual dollars and constant dollars during the period of the study were compared on a simple plot. If inflation had been the only influence in raising PSR levels over the thirty-two year period of the study, then the whole question of whether education finance litigation had an impact on PSR levels would be moot. Thus, if a rise in constant dollars could not be demonstrated, then there would be no further need for inquiry into litigation's affect on PSR because there would be no increase to compare between the years of the study. Also, the study reviewed all fifty states to determine if each state had actually increased the PSR levels for education.

#### **Did States That Experienced Litigation Improve Their PSR in Relation to the National Average?**

The second question reviewed the effect that litigation had on raising a state's PSR compared to other states. The basic assumption of the analysis of Hickrod et al. was that spending would increase for a state whether or not plaintiffs won at the supreme court level.<sup>23</sup> Also, Hickrod et al. hypothesized that states that had experienced litigation,

whether plaintiffs won at the supreme court level or not, would experience an increase in PSR levels compared to those states that had not experienced litigation at the supreme court level. The study analyzed descriptive statistics (mean, rank, standard score) for the fifty states to determine if a state's PSR levels had actually improved in relation to the national average and in relation to other states. Thus, this section of the analysis compared the change in the states where litigation had occurred to those states where litigation had not occurred at the supreme court level. Change for each statistic was defined as whether a state had improved its position, had not improved its position, or had regressed toward a worse position over the thirty-two year period of litigation. Thus, if litigation did increase spending levels or PSR, then states would reflect that influence in the rank or standard score compared to other states. Rank over the thirty-two years of the study was reviewed to see if states, where litigation had occurred, had improved in ranking in relation to other states. If improved ranking could be illustrated for those states that had experienced litigation, then further analysis would be warranted to demonstrate whether the improvements were significant. The same analysis could be used for the standard score of a state compared to the national mean for a given year. A state's standard score for a given year provides a simple comparison of where that state relates to the average for all states. Thus, if a state were to have a negative standard score, and the score improved after litigation had occurred, then the improved standard score may illustrate that litigation had an impact. This part of the study covered four steps in this section:



1. First, a national comparison was analyzed to determine if there was a clear change in improvement or not for both statistics for all fifty states. If litigation had little or no impact, then there would be little or no changes for the various states and most states would be in the no improvement category.
2. Next, the comparison was further delineated into two levels: states that had experienced litigation to states that had not experienced litigation. According to the theory set forth by Hickrod et al.,<sup>24</sup> states that had experienced litigation would have experienced a change in the two statistics of interest.
3. Further comparison was conducted on categories where plaintiffs had won at the supreme court level to those categories where plaintiffs had lost on the supreme court level. If plaintiffs won at the state supreme court level, then the analysis would demonstrate that those states in that category should have improved their position on a national scale.
4. A final analysis itemized each category separately. Consideration of the change in each category provided further clarification as to the validity of the theory set forth by Hickrod et al.

#### **Did the Change in Growth Differ Significantly Between the Various Categories and was That Change Related to Litigation?**

The third question required a multiple regression model. The use of a statistical regression model helped to illustrate the changes in the slopes for the given categories of the study. Because there were three possible variables of interest, interaction effects were also analyzed.<sup>25</sup> Interaction effects were analyzed for four possible effects: year by class, year by enrollment, class by enrollment, and year by class by enrollment. The model was as follows:

$$PSRS_{itL} = \alpha + \beta_1 Y + \beta_2 Ct + \beta_3 E + \beta_4 Y \cdot Ct + \beta_5 Y \cdot E + \beta_6 Ct \cdot E + \beta_7 Y \cdot Ct \cdot E + \varepsilon.$$

PSRS<sub>itL</sub> represents the combined per-student revenue average for both state and local revenues.

Y represents the year variable.

Ct represents the category variable.

E represents the enrollment variable.

$\beta$  is the slope of the regression lines.

$\alpha$  is the y intercept point.

$Y \bullet Ct$  represents the interaction between year and category.

$Y \bullet E$  represents the interaction between year and enrollment.

$Y \bullet Ct \bullet E$  represents the interaction between year, category and enrollment.

There were seven questions tested in the model to account for the seven questions associated with a three factor analysis.<sup>26</sup> Three of the questions related to the main affects for the three independent variables of year, category, and enrollment. Three questions referred to the first-order interactions (two-way interactions) for the three variables, and the last question related to the second-order interaction (three-way interaction) for all three variables. The seven questions were as follows:

1. Does the independent variable Year affect PSR levels?
2. Does the independent variable Category (litigation results) affect PSR levels?
3. Does the independent variable Enrollment affect PSR levels?
4. Is there an interaction affect between Year and Category?
5. Is there an interaction affect between Year and Enrollment?
6. Is there an interaction affect between Category and Enrollment?
7. Is there a three-way interaction affect between Year, Category and Enrollment?

The study included year as a variable to account for other variables not addressed in the model. The category variable represents the classification of states according to the litigation results for each state. Enrollment is included as a variable because other research models have found enrollment to be significant in influencing revenue and expenditure levels for education. The interaction of year by category is the variable of interest in the study. If PSR levels rose every year, a significant score for the interaction of category and year would demonstrate that litigation did have an impact on the resource levels for education. Since there were three levels in the category factor, if there were a significant

year by category interaction, a plot could be drawn illustrating that interaction affect.

The other interaction terms were also observed for significance because testing for significance both main and interaction effects was a standard practice in the literature.<sup>27</sup>

There was no assumption that litigation had resulted in an improved or worsened PSR for any state after litigation had occurred.

When the model met the criteria for the statistical significance, the squared multiple correlation coefficient ( $R^2$ ) was used to assess the adequacy of the fit of the regression model. Interpretation of the magnitude of the effect size for the  $R^2$  was determined using the following parameters:

1. A large effect was an  $R^2$  greater than or equal to .15.
2. A medium effect size was an  $R^2$  greater than or equal to .06.
3. A small effect was an  $R^2$  greater than or equal to .01.
4. An  $R^2$  less than .01 was not significant.<sup>28</sup>

The results of the regression model was summarized in tabular form detailing the partial and model squared multiple correlation coefficients, the sums of squares and the mean squares for the model, the values of the regression coefficients, the  $F$  value, and significance level. If the interactions were found to be significant, post hoc comparisons were made using Bonferonni's post-hoc analysis. Results of the post hoc comparisons were also presented in tabular form. Finally, a plot of category means over the thirty-two years was presented to illustrate the slopes of the various categories.

### Notes

<sup>1</sup> Per-student revenue were derived by dividing the total revenues per state by the total enrollment per state for a given year.

<sup>2</sup> The school district of Washington, DC and other U.S. territories were not included in the analysis because the educational funding for them did not include both state and local variables, which were the variables of interest in developing the PSR means for the analysis.

<sup>3</sup> G. Alan Hickrod, et al., The Effect of Constitutional Litigation in Education Finance: A Preliminary Analysis, *Journal of Education Finance* 18 (1992): 180-210.

<sup>4</sup> These included the National Center for Education Statistics, *Digest of Education Statistics: 1966-1996* (Washington, DC: GPO, 1966-1996); and the National Center for Education Statistics, *Developments in School Finance 1997* (Washington, DC: GPO, 1997).

<sup>5</sup> Roger C. Pfaffenberger and James H. Patterson, *Statistical Methods for Business and Economics*, (Homewood, IL: Irwin, 1987).

<sup>6</sup> S. Chatterjee and B. Price. *Regression Analysis by Example*, 2nd ed. (New York: John Wiley & Sons, 1991).

<sup>7</sup> National Center for Education Statistics, *Digest of Education Statistics: 1966-1996* (Washington, DC: GPO, 1966-1996).

<sup>8</sup> National Center for Education Statistics, *Developments in School Finance 1997* (Washington, DC: GPO, 1997).

<sup>9</sup> E. J. Mason and W.J. Bramble, *Understanding and Conducting Research: Application in Education and the Behavioral Sciences*, 2nd ed. (New York: McGraw-Hill, 1989).

<sup>10</sup> See, Hertert, *supra*, at 233-236 for an explanation of limitations of NCES data. Since this study utilizes NCES Digest data, the same problems in enrollment calculations can be applied to this study.

<sup>11</sup> One area that may cause some problems in the analysis is the inclusion of intermediate revenues into the local revenues. Intermediate revenues include receipts from local and intermediate sources, gifts, and tuition and fees from patrons. The reason these figures are included in the local revenues is that some NCES years included the figures into the local funds, and others included them as a separate category. Inclusion in this study was again to provide a uniform figure. Though the amounts are minimal (generally accounting for less than one percent of the total figures some states may collect more intermediate funds than others, which could adversely affect the comparison.

<sup>12</sup> Hickrod et al., at 181-183.

<sup>13</sup> This category included the following: Alabama, Arizona, Arkansas, California, Connecticut, Kentucky, Massachusetts, Montana, New Hampshire, New Jersey, Ohio, Tennessee, Texas, Washington, West Virginia, Wyoming.

<sup>14</sup> This category included the following: Colorado, Georgia, Idaho, Iowa, Kansas, Maryland, Michigan, Minnesota, Nebraska, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, South Carolina, Virginia, Wisconsin.

<sup>15</sup> This category includes the following: Alaska, Delaware, Florida, Hawaii, Illinois, Indiana, Louisiana, Maine, Mississippi, Missouri, Nevada, New Mexico, Rhode Island, South Dakota, Utah, Vermont.

<sup>16</sup> Such is the case with *Washakie v. Herschler*, , 606 P.2d 310, 340 (Wyo. 1980), *cert. denied*, 449 U.S. 824 (1980). In *Washakie*, the Wyoming Supreme Court applied a July 1983 compliance deadline.

<sup>17</sup> National Center for Education Statistics, *Digest of Education Statistics: 1999* (Washington, DC: GPO, 1999).

<sup>18</sup> David N. Ammons, Adjusting for Inflation When Comparing Revenues or Expenditures, in *Budgeting Formulation and Execution*, eds. Jack Rabin, W. Bartley Hildreth and Gerald J. Miller (Athens Georgia: Carl Vinson Institute of Government, The University of Georgia, 1996), 194.

<sup>19</sup> Richard J. Shavelson, *Statistical Reasoning for the Behavioral Sciences*, 3rd ed. (Boston: Allyn and Bacon, 1996), 123.

<sup>20</sup> *Ibid.*, 124.

<sup>21</sup> Shavelson, 324.

<sup>22</sup> Michael Heise, The Effect of Constitutional Litigation on Education Finance: More Preliminary Analyses and Modeling, *Journal of Education Finance* 21, no. 2 (1965): 204.

<sup>23</sup> Hickrod et al., 210.

<sup>24</sup> Hickrod et al., 180-210.

<sup>25</sup> Pfaffenberger and Patterson, 618.

<sup>26</sup> Schuyler W. Huck and William H. Cormier, *Reading Statistics and Research*, 2nd ed. (New York: Harper Collins College Publishers, 1996), 394.

<sup>27</sup> *Ibid.*

<sup>28</sup> J. Cohen, *Statistical Power Analysis for the Behavioral Sciences* (New York: Academic Press, 1977), 284-288.

## CHAPTER 4

### RESULTS AND DISCUSSION

This study examined the impact that education finance litigation had on state and local revenue levels within the United States. State and local revenues were combined and divided by the Fall enrollment figures for each state to develop a per-student revenue (PSR) number utilized for the analysis. All fifty states were considered in the analysis. Washington D.C. and U.S. Territories were excluded from the analysis because those areas utilized different funding schemes than that of the states. The studies purpose was to test the hypothesis that education finance litigation had an impact on revenue sources in those states that had experienced litigation. The analysis answered three questions.

**Increased revenues:** The first question was whether there was any differential growth in constant dollars for revenues per student (PSR) per state and per litigation category over the thirty-year period of the study.

**Improved funding opportunities:** The second question was whether education finance litigation had improved a states relative position to the national average.

**Relationship to litigation:** The third question was whether education finance litigation impacted the growth of PSR levels for those states that had litigation, and were those levels significantly different from states that had no litigation.

Revenues and enrollment figures for each of the fifty states were obtained from the National Center for Education Statistics *Education Digest* for fiscal years 1965

through 1996 because complete data were available for those years. Since the population of interest was utilized in the analysis, there would be no sampling error within the distribution of scores used.<sup>1</sup> Data were examined for outliers using scatter and residual plots.<sup>2</sup> There were no outlying data points found that would influence the findings of the regression equation. The scatter and residual plots supported the four assumptions relating to the multiple linear regression model.

The following abbreviations were used for each of the variables in the regression analysis:

Y - year, a continuous variable ranging from 65 (Fiscal year 1965-66) to 96 (Fiscal year 1996-97).

Ct - category, a categorical variable ranging from 1 to 3, corresponding to the placement of each state according to the typology used in developing the category.

Enrl - enrollment, a categorical variable ranging from 1 to 0, 1 for states that had increased enrollment figures during the 32 year period and 0 for states that had not increased or decreased their enrollment figures.

PSRStL - Per-student average for state and local revenues, the sum of revenues for state and local dollars per state divided by that states enrollment for the beginning of the fiscal year.

### **Increased Revenues**

The first question dealt with whether PSR for state and litigation category had actually increased over the thirty-two year period of the study after adjusting for inflation. Figure 1 illustrates the comparison of the national mean for PSR in actual and constant dollars (based on 1970 dollars) for the United States for all fifty states in the study.

Figure 1 illustrates the impact inflation had on per-student revenues within the United States from 1970 to 1996. Starting in 1970 at the same dollar amount of \$820, actual dollars had grown to \$5,982 while constant dollars had only grown to \$1,495 after factoring inflation, a difference of \$4,487.<sup>3</sup> This difference amounted to an overall inflationary rate of 300 percent or an average inflation rate of 11.54 percent per year during the twenty-six year period chosen for the study. Glancing at Figure 1 illustrates that by controlling inflation, the growth in PSR levels was not as steep during the period from 1970 to 1996 as the actual dollars would indicate. In fact, the level of growth for the constant dollars would appear to be flatter in comparison to the actual dollars for the same period. However, real spending did increase during the same period. Actual expenses had grown from 1970 to 1996, representing an average increase in PSR revenues of eighty-two percent or 3.17 percent per year.

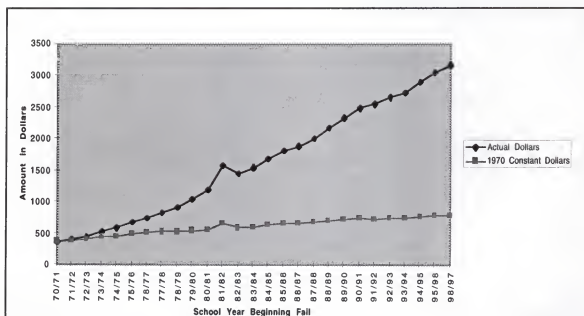


Figure 1. Comparison of Constant with Actual Dollars Per Student



Thus, the first question was answered in the affirmative. Revenues in constant dollars had increased for education over the period of the study. Though revenues had not increased at a constant level as they had with inflation, an eighty-two percent increase in constant dollars from \$820 to \$1,495 illustrates that education had experienced non-inflationary growth in revenues since 1970. Table 1 further demonstrates the growth in real dollars for all fifty states and is further divided into the three categories.

Table 1 includes the representative means in constant dollars for each state in five-year intervals with the last column representing a six-year interval. It also categorized the states according to the typology utilized in the study.<sup>4</sup> Every state had an increase in actual dollars over the thirty-two years of the study. The largest increase occurred in Alabama with a 154 percent increase in constant dollars from 1970 to 1996. The smallest increase occurred in Hawaii with only a forty-five percent increase over the thirty-two years. Overall, the United States average PSR during that time period had also increased eighty-four percent from an average of \$804 in 1970 to \$1,478 in 1996.

Observing the average means for the various categories of the study provided some evidence that litigation may have had a positive impact on revenues. Table 2 provides an average summary of PSR values per category from Table 1. The highest percent increase in PSR values was in Category I, where plaintiffs won at the state supreme court level, with ninety-eight percent average increase overall while Category III, where there was no litigation present at the state supreme court level, had the lowest percent increase in PSR values overall with seventy-six percent. Category II, where

Table 1  
Increase in Constant dollars by State and Category

States/Year Category I	70/71	75/76	80/81	85/86	90/91	96/97	% Increase
Alabama	\$ 464	659	724	875	897	1,131	144
Arizona	\$ 812	1,009	978	1,072	1,245	1,216	50
Arkansas	\$ 461	630	647	806	974	1,128	145
California	\$ 857	1,186	1,132	1,272	1,386	1,375	60
Connecticut	\$ 1,124	1,175	1,077	1,735	2,261	2,177	94
Kentucky	\$ 581	692	669	740	1,123	1,260	117
Massachusetts	\$ 835	1,306	1,302	1,550	1,741	1,815	117
Montana	\$ 781	1,042	1,178	1,396	1,345	1,301	67
New Hampshire	\$ 779	883	974	1,153	1,588	1,523	95
New Jersey	\$ 1,122	1,301	1,429	1,840	2,465	2,376	112
Ohio	\$ 768	882	936	1,227	1,383	1,532	100
Tennessee	\$ 551	657	617	747	903	1,037	88
Texas	\$ 635	867	943	1,225	1,222	1,311	106
Washington	\$ 917	1,019	1,268	1,342	1,511	1,550	69
West Virginia	\$ 648	734	896	1,136	1,333	1,545	138
Wyoming	\$ 691	1,207	1,548	2,237	1,627	1,517	120
<b>Category II</b>							
Colorado	\$ 821	1,076	1,300	1,429	1,372	1,371	67
Georgia	\$ 588	687	791	1,045	1,276	1,375	133
Idaho	\$ 586	792	807	770	961	1,163	135
Iowa	\$ 936	1,056	1,158	1,214	1,251	1,410	24
Kansas	\$ 877	966	1,171	1,391	1,387	1,494	61
Maryland	\$ 988	1,209	1,245	1,493	1,771	1,690	51
Michigan	\$ 854	1,331	1,203	1,477	1,558	1,821	98
Minnesota	\$ 932	1,212	1,338	1,430	1,554	1,655	95
Nebraska	\$ 664	880	1,000	1,210	1,369	1,481	149
New York	\$ 1,368	1,547	1,513	1,927	2,296	2,185	8
North Carolina	\$ 610	730	787	987	1,234	1,209	258
North Dakota	\$ 690	913	1,059	1,195	1,092	1,107	75
Oklahoma	\$ 536	770	975	968	1,122	1,133	106
Oregon	\$ 961	1,165	1,311	1,343	1,535	1,452	18
Pennsylvania	\$ 983	1,145	1,216	1,619	1,824	1,853	48
South Carolina	\$ 620	687	626	1,015	1,192	1,298	199
Virginia	\$ 765	869	938	1,070	1,507	1,508	70
Wisconsin	\$ 1,057	1,068	1,147	1,392	1,618	1,782	43
<b>Category III</b>							
Alaska	\$ 1,359	1,602	2,217	2,390	2,308	2,007	48
Delaware	\$ 1,032	1,161	1,279	1,470	1,563	1,807	75
Florida	\$ 751	925	1,031	1,287	1,482	1,372	83
Hawaii	\$ 1,052	950	955	1,175	1,476	1,456	38
Illinois	\$ 1,016	1,054	1,195	1,092	1,387	1,523	50
Indiana	\$ 865	895	1,054	1,178	1,535	1,808	109
Louisiana	\$ 715	761	942	1,071	1,068	1,123	57
Maine	\$ 719	761	871	1,198	1,549	1,654	130
Mississippi	\$ 467	577	572	679	751	925	98
Missouri	\$ 698	794	895	1,049	1,302	1,393	100
Nevada	\$ 794	933	857	1,107	1,373	1,393	75
New Mexico	\$ 640	744	963	1,110	1,107	1,171	83
Rhode Island	\$ 839	957	1,130	1,482	1,738	1,838	119
South Dakota	\$ 637	795	947	1,018	1,049	1,136	78
Utah	\$ 676	809	876	950	853	1,039	54
Vermont	\$ 1,086	1,000	1,078	1,344	1,776	1,784	64
U.S. Average	\$ 804	961	1,055	1,259	1,425	1,478	84

plaintiffs lost at the state supreme court level, had an increase in PSR values of eighty-two percent. These findings were consistent with those of Hickrod et al. in that those states that had experienced education finance litigation had higher increases in per-student revenues than those states that had not experienced litigation.

Table 2  
Summary of Category PSR Averages

Category/Year	70/71	75/76	80/81	85/86	90/91	95/96	% Increase
<b>Category I</b> Average	\$ 752	953	1,020	1,272	1,438	1,487	98%
<b>Category II</b> Average	\$ 824	1,006	1,088	1,276	1,440	1,499	82%
<b>Category III</b> Average	\$ 834	920	1,054	1,225	1,395	1,464	76%

Closer observation of the average PSR values for the three categories illustrated that Category II states averaged higher PSR values than Category I states from 1970 to 1996. Thus, even though the percent increase was not as high as Category I, Category II states consistently had higher PSR values although Category I states appeared to be gaining on Category II states by 1996. The average annual growth for Category I states equated to roughly 3.8 percent per year while Category II states averaged an annual growth of 3.2 percent per year, and Category III states only averaged a 2.9 percent growth per year. If the growth rate stayed consistent over the next few years, Category I states would produce higher average PSR values over Category II states by 1998 (\$1,602 to \$1,596 respectively).

Further, comparing Category I and Category III states demonstrated that Category III states had higher average PSR levels than Category I and II states in 1970, but had fallen behind in growth compared to Category I states in 1985 and Category II states in 1975. With a lower average growth rate of 2.9 percent per year, Category III states would continue to lag behind both Category I and II states in average PSR. The lower growth in PSR for Category III states would seem to support the hypothesis of Hickrod et al. that states that had experienced litigation would produce higher spending levels per students than those states that had not experienced litigation.

The simple observation of these statistics seemed to support the theory proposed by Hickrod et al. Further analysis was warranted though to determine if the results were consistent with other statistics. The next question would answer whether states that had experienced education finance litigation improved PSR levels compared to other states on a national average due to litigation.

### **Improved Funding Opportunities**

The second question addressed whether a state had improved its position relative to the national average in PSR after experiencing litigation. Two statistics were used to illustrate a state's position compared to the national average. The first statistic was the state's ranking for PSR for a given year. The second statistic was the state's standard score compared to the distribution of all fifty states in the study. Seven years, 1965, 1970, 1975, 1980, 1985, 1990, and 1996, were used for the analysis to represent the thirty-two year period for the study.<sup>5</sup> PSR for each state during a given year was the statistic used for comparison. First, a national comparison was analyzed to determine if

there was a clear change in improvement or not for both statistics. Next the comparison was further delineated into two levels: states that had experienced litigation to states that had not experienced litigation. Further comparison was conducted on categories where plaintiffs had won at the supreme court level to those categories where plaintiffs had lost on the supreme court level. A final analysis itemized each category separately for comparison. The question of interest was whether litigation had improved the states PSR levels enough to improve their ranking and/or relative position to the national average.

The question of whether a state had changed its position on a national scale could be important for those who want to use litigation as a method of reforming education finance. Showing that finance litigation had an affect on improving a state s position on a national scale would support the importance of utilizing finance litigation in the reforming of a state s financing program, and finance litigation, no matter how time consuming or costly, would gain a greater measure of respectability as an effective tool for reform.

The analysis was divided between Tables 3 and 4. Table 3 includes each state s PSR and rank while Table 4 includes the standard score for each state over the seven years chosen for the analysis. The standard score reflects a states relation to the national PSR average for a given year. The fifty states are separated into the categorical typology established for the study. The analysis of the tables was divided into four sections:

- 1) change on a national scale; 2) comparative changes of states with state supreme court litigation against states with no state supreme court litigation; 3) comparative changes of states with successful litigation against states with unsuccessful litigation; and

4) comparative changes between the three categories of states according to the litigation results of the various states.

### **Change on a National Scale**

Data from Table 3 demonstrated a definite change in rankings for most of the states. Of the fifty states represented in the distribution of Table 3, twenty-four had improved rankings in 1996 from 1965. Also, twenty-five had fallen in the national ranking since 1965 while only one state, Mississippi, remained at the same rank. Data from Table 4 also demonstrated a tangible change for all fifty states. Twenty-two states had improved positions in relation to the national mean and twenty-eight had reversed positions negatively in relation to the national mean.

What these figures demonstrated was that a change had occurred for most of the states in relation to both national ranking and the standard score. Thus, out of fifty states, all but one, Mississippi had changed their ranking scores, and all fifty states had changed relative positions to the national mean for PSR. This step in the analysis illustrated that some measure of change had occurred during the thirty-two years of the study. Had no change occurred in ranking and standard scores during that period, then the change in PSR amounts could have been attributed to simply inflationary factors. However, the change in PSR levels helped to justify further investigation to the cause of that change.

Finally, of the two statistics used in this section of the study, only four states, Alabama, Arizona, Tennessee and Mississippi had different results in the ranking and standard score categories. Alabama, Arizona and Tennessee had improved in ranking

Table 3

PSR and Rank for States by Category over Years of Interest

	1965		1970		1975		1980		1985		1990		1996	
	PSR	Rank	PSR	Rank	PSR	Rank	PSR	Rank	PSR	Rank	PSR	Rank	PSR	Rank
<b>Category I</b>														
Alabama	358	49	464	49	659	47	724	45	875	45	897	48	1131	44
Arizona	575	32	812	23	1009	20	978	27	1072	35	1245	35	1216	38
Arkansas	404	47	461	50	630	49	647	47	806	46	974	45	1128	45
California	899	3	857	18	1186	9	1132	19	1272	21	1386	25	1375	31
Connecticut	749	9	1124	3	1175	10	1077	22	1735	5	2261	4	2177	3
Kentucky	417	46	581	45	692	44	669	46	740	49	1123	39	1260	37
Massachusetts	642	25	835	21	1306	4	1302	7	1550	7	1741	8	1815	8
Montana	655	20	781	25	1042	18	1178	15	1396	14	1345	30	1301	35
New Hampshire	596	28	779	26	883	29	974	29	1153	30	1588	12	1523	19
New Jersey	813	4	1122	4	1301	5	1429	4	1840	4	2465	1	2376	1
Ohio	631	26	768	27	882	30	936	36	1227	22	1383	26	1532	18
Tennessee	381	48	551	46	657	48	617	49	747	48	903	47	1037	49
Texas	544	38	635	40	867	33	943	33	1225	23	1222	37	1311	34
Washington	783	5	917	15	1019	19	1268	10	1342	19	1511	19	1550	16
West Virginia	455	43	648	37	734	42	896	37	1136	31	1333	31	1545	17
Wyoming	678	16	691	33	1207	8	1548	2	2237	2	1627	10	1517	21
<b>Category II</b>														
Colorado	653	21	821	22	1076	14	1300	8	1429	13	1372	28	1371	33
Georgia	448	44	588	43	687	45	791	43	1045	39	1276	33	1375	30
Idaho	550	36	586	44	792	37	807	42	770	47	961	46	1163	41
Iowa	672	17	936	13	1056	16	1158	17	1214	24	1251	34	1410	27
Kansas	666	18	877	16	966	22	1171	16	1391	16	1387	23	1494	23
Maryland	727	10	988	10	1209	7	1245	11	1493	8	1771	7	1690	13
Michigan	614	27	854	19	1331	3	1203	13	1477	10	1558	14	1821	7
Minnesota	760	8	932	14	1212	6	1338	5	1430	12	1554	15	1655	14
Nebraska	565	33	664	36	880	31	1000	26	1210	25	1369	29	1481	24
New York	1129	1	1368	1	1547	2	1513	3	1927	3	2296	3	2185	2
North Carolina	460	42	610	42	730	43	787	44	987	42	1234	36	1209	39
North Dakota	561	34	690	34	913	27	1059	23	1195	27	1092	42	1107	47
Oklahoma	500	39	536	47	770	38	975	28	968	43	1122	40	1133	43
Oregon	773	6	961	12	1165	11	1311	6	1343	18	1535	18	1452	26
Pennsylvania	704	14	983	11	1145	13	1216	12	1619	6	1824	5	1853	5
South Carolina	421	45	620	41	687	45	626	48	1015	41	1192	38	1298	36
Virginia	495	41	765	28	869	32	938	35	1070	37	1507	20	1508	22
Wisconsin	706	13	1057	6	1068	15	1147	18	1392	15	1618	11	1782	12
<b>Category III</b>														
Alaska	714	12	1359	2	1602	1	2217	1	2390	1	2308	2	2007	4
Delaware	1105	2	1032	8	1161	12	1279	9	1470	11	1563	13	1807	10
Florida	584	29	751	29	925	26	1031	25	1287	20	1482	21	1372	32
Hawaii	721	11	1052	7	950	24	955	31	1175	29	1476	22	1456	25
Illinois	763	7	1016	9	1054	17	1195	14	1092	34	1387	23	1523	20
Indiana	691	15	865	17	895	28	1054	24	1178	28	1535	17	1808	9
Louisiana	553	35	715	31	761	39	942	34	1071	36	1068	43	1123	46
Maine	497	40	719	30	761	39	871	40	1198	26	1549	16	1654	15
Mississippi	347	50	467	48	577	50	572	50	679	50	751	50	925	50
Missouri	645	24	698	32	794	36	895	38	1049	38	1302	32	1393	28
Nevada	651	22	794	24	933	25	857	41	1107	33	1373	27	1393	29
New Mexico	584	29	640	38	744	41	963	30	1110	32	1107	41	1171	40
Rhode Island	651	22	839	20	957	23	1130	20	1482	9	1738	9	1838	6
South Dakota	550	36	637	39	795	35	947	32	1018	40	1049	44	1136	42
Utah	577	31	676	35	809	34	876	39	950	44	853	49	1039	48
Vermont	666	18	1086	5	1000	21	1078	21	1344	17	1776	6	1784	11

Table 4  
Standard Score for States by Category Across Year

	1965 SD	1970 SD	1975 SD	1980 SD	1985 SD	1990 SD	1996 SD
<b>Category I</b>							
Alabama	-1.68	-1.63	-1.31	-1.17	-1.11	-1.43	-1.17
Arizona	-0.32	0.04	0.21	-0.27	-0.54	-0.49	-0.91
Arkansas	-1.39	-1.64	-1.43	-1.45	-1.31	-1.22	-1.18
California	1.71	0.25	0.97	0.27	0.04	-0.11	-0.43
Connecticut	0.77	1.53	0.92	0.08	1.38	2.27	2.03
Kentucky	-1.32	-1.07	-1.17	-1.37	-1.51	-0.82	-0.78
Massachusetts	0.10	0.15	1.49	0.88	0.84	0.86	0.92
Montana	0.18	-0.11	0.35	0.44	0.40	-0.22	-0.66
New Hampshire	-0.19	-0.12	-0.34	-0.29	-0.31	0.44	0.02
New Jersey	1.17	1.52	1.47	1.33	1.68	2.82	2.63
Ohio	0.03	-0.17	-0.34	-0.42	-0.09	-0.11	0.05
Tennessee	-1.54	-1.21	-1.32	-1.55	-1.48	-1.42	-1.46
Texas	-0.52	-0.81	-0.41	-0.40	-0.10	-0.55	-0.62
Washington	0.99	0.54	0.25	0.76	0.24	0.23	0.11
West Virginia	-1.07	-0.75	-0.98	-0.56	-0.36	-0.25	0.09
Wyoming	0.33	-0.54	1.06	1.75	2.84	0.55	0.01
Average	-0.17	-0.25	-0.03	-0.12	0.04	0.03	-0.08
<b>Category II</b>							
Colorado	0.17	0.08	0.50	0.87	0.49	-0.14	-0.44
Georgia	-1.12	-1.03	-1.19	-0.94	-0.62	-0.40	-0.43
Idaho	-0.48	-1.04	-0.73	-0.88	-1.42	-1.26	-1.08
Iowa	0.29	0.63	0.41	0.37	-0.13	-0.47	-0.32
Kansas	0.25	0.35	0.02	0.41	0.38	-0.10	-0.06
Maryland	0.63	0.88	1.07	0.67	0.68	0.94	0.54
Michigan	-0.08	0.24	1.60	0.52	0.63	0.36	0.93
Minnesota	0.85	0.61	1.09	1.00	0.50	0.35	0.43
Nebraska	-0.38	-0.67	-0.35	-0.19	-0.14	-0.15	-0.10
New York	3.16	2.70	2.53	1.63	1.94	2.36	2.05
North Carolina	-1.04	-0.93	-1.00	-0.95	-0.79	-0.52	-0.93
North Dakota	-0.41	-0.55	-0.21	0.01	-0.19	-0.90	-1.25
Oklahoma	-0.79	-1.28	-0.83	-0.28	-0.84	-0.82	-1.17
Oregon	0.92	0.75	0.88	0.91	0.24	0.30	-0.19
Pennsylvania	0.49	0.86	0.80	0.57	1.04	1.08	1.03
South Carolina	-1.29	-0.88	-1.19	-1.52	-0.71	-0.63	-0.66
Virginia	-0.82	-0.19	-0.40	-0.42	-0.55	0.22	-0.02
Wisconsin	0.50	1.21	0.46	0.33	0.39	0.52	0.82
Average	0.05	0.10	0.19	0.12	0.05	0.04	-0.05
<b>Category III</b>							
Alaska	0.56	2.66	2.78	4.12	3.28	2.39	1.50
Delaware	3.01	1.09	0.87	0.79	0.61	0.38	0.89
Florida	-0.27	-0.25	-0.16	-0.09	0.08	0.15	-0.44
Hawaii	0.59	1.19	-0.05	-0.35	-0.24	0.14	-0.18
Illinois	0.86	1.01	0.40	0.50	-0.48	-0.10	0.02
Indiana	0.41	0.29	-0.29	0.00	-0.24	0.30	0.90
Louisiana	-0.46	-0.43	-0.87	-0.40	-0.55	-0.97	-1.20
Maine	-0.81	-0.41	-0.87	-0.65	-0.18	0.34	0.42
Mississippi	-1.75	-1.61	-1.66	-1.71	-1.68	-1.83	-1.80
Missouri	0.12	-0.51	-0.72	-0.57	-0.61	-0.33	-0.37
Nevada	0.16	-0.05	-0.12	-0.70	-0.44	-0.14	-0.37
New Mexico	-0.27	-0.78	-0.94	-0.33	-0.43	-0.86	-1.05
Rhode Island	0.16	0.17	-0.02	0.27	0.65	0.85	0.99
South Dakota	-0.48	-0.80	-0.72	-0.38	-0.70	-1.02	-1.16
Utah	-0.31	-0.61	-0.66	-0.64	-0.90	-1.55	-1.46
Vermont	0.25	1.35	0.17	0.08	0.25	0.95	0.82
Average	0.11	0.14	-0.18	0.00	-0.10	-0.08	-0.16



scores, yet these states had decreased in standard scores. The continuity of the results in whether a state improved or digressed in the ranking and standard scores helped to justify the use of these statistics in the analysis. The next stage of the analysis considered education finance litigation in the comparison by reviewing the changes for the various categories of interest. If litigation, the variable of interest here, had an impact on revenues, then it would be expected that the Category I and Category II states would see more improved rank and standard scores than in Category III.

### **States with State Supreme Court Litigation v. States with No State Supreme Court Litigation**

This segment of the analysis split the categories into two sections. Section I, Categories I and II, represents those states where state supreme court litigation had occurred during the thirty-two year time period while Section II, Category III, were states where no state supreme court litigation had occurred. The comparison for this section was discussed as percentages rather than numbers to reflect a more even comparison between the two sections because Section I included more states than Section II. Figure 2 represents the finding of this section.

States by Rank			States by Standard Scores		
	I	II		I	II
Increase	19	5	Increase	17	5
Decrease	15	10	Decrease	17	11
No change	0	1	No Change	0	0

Figure 2. Section I and II Compared by Rank and Standard Scores

Out of the Section I states, nineteen had improved ranking while fifteen had fallen in ranking. Thus, fifty-six percent of the states that experienced litigation at the state supreme court level had improved rankings while forty-four percent had fallen in ranking on a national scale. The ratio for the standard scores in Table 4 appeared to be inconclusive. Out of the thirty-four states in Section I, 17 had improved standard scores and seventeen had decreased standard scores; thus, fifty percent of the states improved their position to the national mean, while fifty percent lost ground in relation to the national mean.

Regarding national ranking, Section II states, those that had no state supreme court litigation, had greater disparity than Section I states. Of the sixteen states in this category, five of them had improved national rankings, representing thirty-one percent of the states. The other ten states that had fallen in ranking represented sixty-three percent of the states in this section. Only one state, Mississippi, did not change its ranking during the thirty-two year period of the study. The standard score was almost identical to the ranking score. The only difference was that Mississippi had fallen in relation to the national mean between the years of 1965 and 1996.

Although a clear benefit cannot be deduced from the results of this analysis, states that had experienced litigation had a higher percentage of improvement in the ranking than states that had not experienced litigation. Analysis of the standard scores did not clearly identify any benefit from litigation. It was not clear from the analysis why the ranking scores would show more improvement and the standard scores did not show any

improvement for Section I. Within Section II, there was a clear change in ranking and standard scores over the thirty-two year period chosen for the study.

One problem with this segment of the analysis was the difference in number of states in each section. Thus, a higher percentage in a smaller group may not be easily compared to a higher number in a larger group. However, in this case, Section II, states that had not experienced litigation, had the lower percentages of increased ranking and standard scores. Therefore, the percentage increase in Section I does represent a stronger case for litigation effecting some sort of change. The results here may provide some justification for continued litigation, but further analysis was needed to provide clearer comparisons between states.

#### **States with Successful Litigation v. States with Unsuccessful Litigation**

This comparison analyzed Categories I and II. Category I represented states where plaintiffs won at the supreme court level. Categories II represented states where plaintiffs lost at the supreme court level. The purpose for this analysis of these data was to view any benefit to states if plaintiffs won at the state supreme court level.

The statistics for Categories I and II only slightly indicated that Category I states, where plaintiffs won at the supreme court level, outperformed Category II states, where plaintiffs lost at the supreme court level. Category I included sixteen states where eleven of them actually improved the rankings. The eleven states represented sixty-eight percent of the states in Category I. In Category II only forty-four percent or eight out of eighteen states experienced an increase in the ranking statistic. The difference was not as dramatic

for the standard score, but Category I states did improve more standard scores than Category II states.

One problem that became obvious during the analysis was how to interpret the scores in these categories when they fell. If the theory by Hickrod et al., that PSR levels would rise once litigation had occurred, were true, then the assumption could be made that ranking and standard scores should either rise or stay the same for those states that had experienced litigation. However, this was not the case in the study. Although there were more gains than not regarding ranking and standard scores, the hypothesis that states where plaintiffs won at the state supreme court level would improve their PSR levels greater than those states where plaintiffs lost at the state supreme court level could not be clearly validated from the data. The previous analysis clearly indicated that litigation at the state supreme court level had a stronger impact on improving some states rankings and standard scores than in those states where there was no litigation. The last step in this analysis illustrated the change that occurred in ranking and standard scores for PSR in all three categories in the study to further determine if litigation had some influence on PSR levels for a state.

#### **Change in Ranking and Relation to the National PSR by Category**

This final analysis for this section of the study compared the change in the rankings and standard scores for the three categories used in the study. This section of the analysis further itemized the categories to provide a comparison between the various litigation results that the categories represented. Thus, did the average for Category I states, where plaintiffs won at the state supreme court level, actually perform better than

Category II and III states, where plaintiffs either lost at the state supreme court level, or litigation was not present at the state supreme court level.

Category I states, where plaintiffs won at the state supreme court level, included sixteen states. Category I states had the widest margin of variation between gains and losses of all the states in relation to rankings. Out of the sixteen states, eleven had gained in national ranking while five declined in ranking. Table 4 confirmed this result, illustrating that nine states had gained in standard scores while seven states had losses in standard scores.

Category II states, where plaintiffs lost at the supreme court level, did not show as positive an impact on ranking and standard scores. Both Table 3 and Table 4 showed eight gains and ten losses for this category. The results for ranking and standard scores for this category may support the assumption that the failure of plaintiffs to win at the supreme court level may have a negative impact on these statistics, but not a dramatic impact. The chance that a state's PSR levels would rise after plaintiffs lost at the supreme court level are forty-four percent compared to a fifty-six percent chance that the PSR levels will decline compared to the national average.

Category III, where there has been no litigation in the state, or litigation had not reached the supreme court level, showed a clear difference between gainers and losers. Of the states in this category, five of the fifteen states improved their ranking and standard scores. Ten of the states fell in the ranking scores; Mississippi retained the same ranking of fifty throughout the thirty-two year period of the study. The other eleven states also declined in the standard score.

### **Applying Meaning to the Analysis**

Table 3 and Table 4 clearly demonstrated that there were definite changes in ranking and relation to the average in the various states during the thirty-two year period of the study. On a national scale, change occurred for most of the states, and a more detailed analysis illustrated that states that had experienced litigation had more gains than losses than states that had no litigation on the state supreme court level.

Though change did occur, and litigation seemed to effect a more positive change than no litigation, observing the changes in the various categories showed some contradictions to the hypothesis that litigation had a positive impact on increasing PSR levels for the states. Rather, litigation only had a slightly better percentage impact on improving ranking and standard scores. The fact that there were losses in Category I, II and III states appeared problematic for the study. If litigation had little or no impact on ranking and standard scores, then the results of Tables 3 and 4 should have illustrated more states that had remained the same on ranking and standard scores. Also, some states that had not experienced litigation improved the ranking and standard scores, though not at the same percentage as Category I and II states. The results of Tables 3 and 4 prove problematic for the hypothesis established by Hickrod et al. What could be interpreted from the Tables is that litigation produces some gains in ranking and standard scores but may also produce some losses. This conclusion may create a predicament for those reformers who may support litigation efforts as a reform tool because there was no clearly definable conclusions.

Others variables of interest may be influencing the results of Table 3 and Table 4 that are not accounted for in this portion of the study. One explanation may be that the various states may have experienced higher rates of inflation within the various regions: regional inflation was not a variable accounted for in this study. The cost of living in some states, like California and New York, was higher than other states. This variable may have had an influence on the PSR levels of the individual states over the thirty-two year period of the study, which could affect their ranking and standard scores. A higher inflation index could raise a state s PSR levels artificially in relation to other states. Controlling for a regional inflation index was not undertaken in this study because such an index was not available for the thirty-two years chosen in this study.

Another factor that could influence the outcome of Table 3 and Table 4 might be related to an increase in enrollment for a given state. Some states may have experienced a greater enrollment growth than other states; thus, the distribution of funds might have been divided over a greater student population than others. Two such states, California and Florida, would be examples of this possible increased population variable influencing PSR levels. California and Florida experienced tremendous population increases over the thirty years of education litigation. Both California and Florida fell in both ranking and standard scores over the thirty-year period of the study. If revenue increases did not keep pace with enrollment increases, there would be less funds to distribute over a larger population. Hence, if the correlation between enrollment increases and PSR figures were strong, the strength of that relationship may affect the interpretation of the two tables. The impact of this variable was addressed in the next section of the study.

At first glance, it appeared that finance litigation provided some impact on improving a state's PSR. Further itemization of the results in Table 3 and Table 4 gave a better ratio to states that had education finance litigation. Out of the thirty-three states that had experienced litigation at the state supreme court level, eighteen showed improvement in ranking while fifteen declined in ranking. Those states that had not experienced litigation at the state supreme court level or did not have any litigation showed more decline than gain in rankings. Out of the sixteen states in this category, only five of them improved their ranking; ten of them fell in ranking, and only 1, Mississippi, had no change in ranking.

Further itemizing these data slightly improved the results for those states where plaintiffs had won at the supreme court level. Category I were states where the state supreme court ruled in favor of the plaintiffs. In this Category, more states improved in ranking and standard scores than in the other two categories. Category III states had more states decreasing the ranking and standard scores by a margin of 2 to 1.

The results in this section of the study provided a clearer relationship between the three categories of states during the modern period of education finance litigation. The statistics do favor the litigation states some, but the question remains of whether those statistics are significant. Since significance cannot be determined by observation, a statistical analysis would help further clarify the relationship of litigation to PSR levels.

### **Does Litigation Influence PSR Levels in a State?**

Descriptive statistics for the six categories over the thirty-two year period of the study are illustrated in Table 5. These data show that there had been a definite increase in



PSR levels for each category. The highest mean was in Category 2, 1134, but the highest maximum PSR was in Category 1. The lowest mean is Category III, 1095, which also had the lowest minimum, 347, but the higher maximum amount than Category II, 2533 to 2296. Categories I and II have higher means than Category III, which would appear consistent with the hypothesis that litigation had a tendency to increase PSR levels for states. However, an analysis of the means over the thirty-two year period provided a clearer picture of those differences.

A general linear model (GLM) was used for the regression analysis to determine the correlation between litigation and PSR levels. Three factors, one continuous (Year) and two categorical (Enrollment and Litigation) were used in the analysis. Enrollment was included as a factor of interest because earlier studies had included it as a possible variable of influence.<sup>6</sup> Since the N for the three categories are different, Type III sums of squares were used to calculate the F statistic.

Table 5  
Descriptive Statistics for Category Data for Average PSR

Category	N	Avg. PSR	Std Dev	Minimum	Maximum
I	512	1102.88	430.83	358	2570
II	576	1134.78	372.78	404	2296
III	512	1095.96	399.86	347	2533

Table 6 shows the results of the GLM chosen for the study and the source table with the F value for the variables and interactions using the Type III Sums of Squares.

The  $R^2$  for the model was .48, which illustrated a large affect size according to the criteria established by the study. The large  $R^2$  meant that the model was significant for the purpose of the study. Since the  $F$  value of the model was significant, further analysis of the variables and interactions was warranted. Review of the source table for the variables and interactions demonstrated that the year variable ( $p < .05$ ) was the only variable that significantly affected the PSR independent variable. The other variables and interactions were not significant. Thus, the first outcome of interest in this section of the analysis, that year influenced PSR values, proved affirmative according to the statistical model used in the study. The year variable was the only variable that affected PSR variables, meaning that PSR values can be expected to rise during a given year.

Table 6

Summary table and for the relationship between litigation and PSR levels.

Dependent Variable: PSRSTL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	11	125402760	11400251	137.64	0.0001*
Error	1588	131526385	82825		

Corrected Total	1599	256929145			
R-Square		C.V.	Root MSE	PSRSTL Mean	
0.488083		25.87717	287.794	1112.15	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
YEAR	1	116786259	116786259	1410.03	
					0.0001*
CLS	2	145895	72947	0.88	0.4147
ENRL	1	179834	179834	2.17	0.1408
YEAR X CLS	2	164234	82117	0.99	0.3713
YEAR X ENRL	1	109072	109072	1.32	0.2513
CLS X ENRL	2	178173	89087	1.08	0.3413
YEAR X CLS X ENRL	2	394517	197259	2.38	0.0927

\* = statistically significant result

Further, the parameter estimate for year demonstrates that PSR levels can be expected to rise by an average of 29.39 dollars per year on average in the various fifty states.

The model failed to support the other outcome questions of the model. Main effects for the variables Category and Enrollment and the interactions of these variables were not determined to be significant by the model. Thus, the model demonstrated that the variables Category and Enrollment may not have an affect on PSR levels. The results of the study, therefore, could not determine if litigation was affective in increasing PSR levels for a state. Thus, the differences in PSR levels between the Categories in the second part of the analysis could not be related to whether a state had experienced litigation. Also, the model illustrated that Enrollment did not have an affect on PSR levels for a state. Thus, the increase or decrease of a state s enrollment would not equate to an increase or decrease in PSR levels.

### **Summary of Findings**

The results of the study supported the first two questions, but the last question of the study was not supported by the statistical analysis. Per-student revenues did increase in constant dollars across the fifty states in the study. Further, whether a state had litigation or not also seemed to position it in a more favorable position to the national average for PSR than those states that had not experienced litigation. However, the increase in PSR levels for a state could not be attributed to whether that state had experienced litigation or not.

### **Increased Revenues**

Did spending rise during the period of modern education finance litigation? The results of the study indicated that spending for education did rise after accounting for inflation. Determining the rise of spending in constant dollars was an important step for the study because had there not been a rise in revenues for education, then the increase in revenues over the thirty-two year period of the study would be related to inflation.

### **Improved Funding Opportunities**

Did litigation equate to improved funding opportunities for states that had experienced litigation? This question was important in the study because it related to the hypothesis by Hickrod et al. that funding levels would rise in a state if that state had experienced litigation regardless if plaintiffs won at the state supreme court level. Hickrod et al. further concluded that states where plaintiffs won at the supreme court level, would experience higher increases in revenues than those states where plaintiffs lost at the supreme court level. However, both categories would have greater increases in revenues than those states where no litigation had occurred. The study utilized two statistics, rank and standard score, to analyze this question. The findings did seem to illustrate that states, where litigation had occurred, did have greater gains in ranking and standard scores than those states where no litigation had occurred. However, the fact that Category I and II states had also experienced some declinations in ranking and standard scores showed that this section of the study could not clearly illustrate that litigation had a strong, positive impact on raising PSR levels for a state.

## Relation to Litigation

Could the rising PSR levels for each state be related to the education finance litigation? The third section of the study compared the statistical correlation of litigation and PSR levels. The findings of the analysis illustrated that litigation did not have a statistically significant impact on PSR levels for a state. The statistical model did demonstrate that PSR levels would rise every year, but that this rise could not be clearly related to whether a state had experienced litigation.

## Conclusion

The findings of the study did not provide a clear, positive picture of litigation's impact on PSR levels. Improved ranking and standard scores were demonstrated for some states that had experienced litigation, but not for all those states. Further, litigation could not be correlated to rising PSR levels within the various states. Thus, other reasons for the rise in PSR levels over the thirty-two years analyzed in the study should be investigated.

## Notes

<sup>1</sup> Roger C. Pfaffenberger and James H. Patterson, *Statistical Methods for Business and Economics* (Homewood, IL: Irwin, 1987), 10-11.

<sup>2</sup> *Ibid.*, 788.

<sup>3</sup> The chosen deflator factor was the Consumer Price Index adjusted for the school year (National Center for Education Statistics, *Digest of Education Statistics: 1999* [Washington, DC: GPO, 1999]). The formula used to convert the actual to constant dollars was as follows:

Current Dollars x Base Year CPI/Current Year CPI = Current dollars in base year dollars.  
Thus, the calculation from actual 1996 PSR average to constant dollars was as follows:

$$\$5,982 \times 39.7/158.9 = 1495.$$

The formula for the overall inflation rate is as follows:

$$\text{Difference/Constant Dollar} \times 100 = \text{Percentage Increase (Inflation Rate)}$$

Thus, the calculation for the inflation factor from actual to constant dollars was as follows:

$$4487/1495 \times 100 = 300$$

<sup>4</sup> Category I was states where the plaintiffs had won at the state supreme court level. Category II was states where the plaintiffs had lost at the state supreme court level. Category III was states where there was no litigation at the state supreme court level, or litigation was dormant.

<sup>5</sup> The seven years in this section of the study were chosen to represent the thirty-two year span of the study. The study could have used the two years of 1965 and 1996 to compare the changes in PSR, but chose to use a five-year interval to illustrate any incremental changes.

<sup>6</sup> See, e.g., Michael Heise, "The Effect of Constitutional Litigation on Education Finance: More Preliminary Analyses and Modeling," *Journal of Education Finance* 21, no. 2 (1995): 204.

## CHAPTER 5

### SUMMARY AND CONCLUSIONS

The purpose of this study was to determine whether education finance litigation had an impact on raising per-student revenue (PSR) levels within a state. All fifty states in the United States were chosen for the analysis. The study analyzed the relationship between education finance litigation and revenues within a state. The study focused the analysis on a time period of thirty-two years from 1965 to 1996. The year 1996 was chosen as the cutoff year because data were not available after that year during the time of the study. The analysis focussed on the differences between PSR levels for each state before and after litigation, so the years 1965 through 1971 represented years prior to litigation since modern education finance litigation began with the 1971 decision in *Serrano I*.

The study was concerned with relating observable increases in resource levels to the type of litigation results experienced by the various states. The study compared the growth in revenues in states where litigation had occurred at the supreme court level to the growth in revenues in states where litigation had not occurred to determine if litigation had an impact on raising PSR levels in those states that had experienced it. The study analyzed PSR levels for all fifty states during the period chosen for analysis.

The initial work on correlating resources to litigation was completed by Hickrod et al.<sup>1</sup> The study by Hickrod et al. viewed the differences in spending per student for the

fifty states during the years 1970 and 1990. Hickrod et al. reviewed the difference in spending levels between the two years and concluded that states that had experienced litigation had increased spending levels more than states that had not experienced litigation. Heise<sup>ii</sup> did a follow up study to Hickrod et al. He applied a statistical model to the typology of Hickrod et al. and failed to find a significant correlation between litigation and spending. However, his study was limited to only two states.

Although this study is a continuation of the earlier studies of Hickrod et al., and Heise, the strength of this study came from the type of data used and the statistical analysis applied. The study utilized all fifty states PSR levels over a thirty-two year period and analyzed them using a regression analysis to determine significance between the increased levels of PSR over the thirty-two years. There were three primary questions addressed in the study: increased revenues, improved funding opportunities, and relation to litigation.

### **Increased Revenues**

The first question addressed in this study related to whether PSR levels had increased in constant dollars over the thirty-two year period of the study. Real dollar increases was necessary for the study to have been effective; otherwise, inflation could have been a factor in increases in PSR levels and would have skewed the impact of litigation. High inflationary years could have occurred during the period of education finance litigation, thus making inflation a potentially highly correlated variable with another independent variable.



### **Improved Funding Opportunities**

The second question addressed whether states had individually increased PSR levels during the years of the study and did states that had experienced litigation improve PSR levels over those states that had not experienced litigation. Two statistics, rank and standard score, were used to illustrate whether a state had improved its individual PSR level over the thirty-two year period of the study. Each state was placed in one of three categories according to its litigation results. Category I was states where the plaintiffs won at the state supreme court level. Category II was states where the plaintiffs lost at the state supreme court level. Category III was states where there was no litigation at the state supreme court level. The purpose of this section of the study was to itemize the individual impact of litigation on a state. The analysis focused on determining whether the hypothesis of Hickrod et al., that states where litigation had occurred had improved revenue (spending) levels over states where litigation had not improved, was observable. Also, Hickrod et al. had hypothesized that states where plaintiffs won at the supreme court level would see more improvement in revenues over states where plaintiffs lost at the supreme court level.

### **Relation to Litigation**

The last issue addressed whether increased PSR levels could be correlated to the type of litigation that had occurred in the state. The three categories developed for the second question were used for this analysis as well. The analysis observed whether the differences in the average increase in PSR levels for the states in each category were

significantly different during the thirty-two year period, and whether that difference was related to the litigation results for each category. Category III, states that had not experienced litigation at the state supreme court level, was used as the control group. If the hypothesis of Hickrod et al. were true, then there would have been an observable difference between the averages for the various categories over the thirty-two years of the study.

The study utilized archival data over the thirty-two years of the study. The PSR statistic was developed by dividing the yearly revenues with the Fall enrollment figures for a given year. Revenues consisted of only state and local revenues. Federal revenues were excluded from the analysis because the litigation that had occurred over spending focussed on State and Local revenues and not on Federal revenues. Thus by controlling for Federal dollars, the study controlled for any possible impact on revenues that may have been influenced by increases or decreases in Federal spending for education.

### **Summary of Results**

#### **Increased Revenues**

The first question, did PSR levels rise in constant dollars during the period of modern education finance litigation, was answered in the affirmative. PSR levels had increased in constant dollars for all states during the period of the study. Actual dollars were compared with constant dollars using a deflator index. The results showed a definite decrease in PSR levels after inflation had been controlled, but PSR levels in constant dollars had increased by over 82 percent between 1970 and 1996, the period of modern education finance litigation. The finding of increased PSR levels in constant dollars

provided justification that the increases may have been related to a factor other than inflation, which was important for the study because had PSR levels been found to have remained flat or to have actually declined after inflation was accounted for, then the hypothesis of Hickrod et al., that education finance litigation benefited revenues and/or spending within a state, would have been nullified without need for additional analysis.

### **Improved Funding Opportunities**

In addressing the second question in the study, did a state improve its relative position to the national average after experiencing litigation, the study produced mixed results. There were some improvements in some states in the various categories, but these seemed to be negated somewhat by declinations in other states within the same categories. Had the theory proposed by Hickrod et al. been correct, then the results of this study should have produced clearly identifiable improvements in ranking and standard scores for the various states in each category; i.e. categories where states had experienced litigation should have clearly improved their ranking and standard scores over states where litigation had not occurred. The findings of this study demonstrated that this scenario was not the case for all states. Category I states should have improved ranking and standard scores dramatically over Category III states, and it should have been slightly better than Category II. However, the results did not clearly support the theory of Hickrod et al.

The figures did illustrate that Category I states had more gains in rank and standard scores than Category II and III states, but declinations in some states within that category raised the question of whether the gains could be clearly related to litigation.

The average ranking score for the states in Category I was twenty-seven in 1965 and had improved to only twenty-six in 1996, and the average for Category II had remained at roughly twenty-four. Category III had its average decline by one point, twenty-three in 1965 to roughly twenty-four in 1996, over the thirty-two years, but it still had a slightly better average ranking than Category I.

Other analysis during this part of the study did not support the hypothesis established by Hickrod et al. Of the top ten states for PSR, Category I states had only three states in the top ten, Connecticut, Massachusetts, and New Jersey. Category II had three states in the top ten, Michigan, New York, and Oregon, and Category III had four of the top ten states for PSR, Alaska, Delaware, Indiana, and Rhode Island. Expanding the list to the top twenty states produced seven for Category I, six for Category II, and seven for Category III.

Although the analysis in this part of the study did not provide clear support for the hypothesis set forth by Hickrod et al., it did provide enough variance in the scores to justify further investigation into the correlational relationship between litigation and improved PSR levels. The next part of the study provided more quantifiable results as the relationship between litigation and PSR levels.

### **Relationship to Litigation**

The third question addressed whether the increased PSR levels could be correlated to the type of litigation experienced by each state. Does litigation at the state supreme court level actually help increase revenues for education within a state? The study viewed three independent variables: Year, Litigation, and Enrollment. Year was included

as an independent variable to include the assumption that PSR levels would rise.

Litigation was split into three levels: Category I, states where plaintiffs won at the supreme court level; Category II, states where plaintiffs lost at the supreme court level; and Category III, states where there was no litigation present in the state or litigation had not reached the supreme court level. The enrollment variable had two levels: states that had experienced an increase in enrollment levels over the thirty-two years of the study and states that had not experienced increased enrollment.

The variables were analyzed using a multiple regression equation. The results showed that Year was the only independent variable that influenced PSR levels. The main effects for Category and Enrollment were non-significant, and there were no significant interaction effects. Thus, the study did not support the hypothesis of Hickrod et al. that PSR levels would rise when litigation was present in a state. What the regression analysis did demonstrate was that PSR levels could be expected to rise every year, but that litigation or enrollment were not important factors in that increase.

### **Conclusion**

The results of this study did not support the hypothesis that education finance litigation would impact rising revenue levels in a state. What can be concluded was that revenues have continued to rise in constant dollars during the last thirty years; however, that increase cannot be attributed to the education finance litigation that had occurred in various states in this study. The study did illustrate that revenues rose faster in some states than in others, and states that had experienced litigation had some economic benefits. However, the regression model used in the study showed that differences

between the various categories of states were not significant enough to correlate that difference to the litigation factor.

### **Increased Revenues**

The PSR levels in constant dollars for each state in the study did increase over the thirty-two year period chosen for analysis. The increase in constant dollars over the last thirty-two years illustrates that spending for education had been on a steady incline even during periods of recession. Since inflation was accounted for, the finding that resources did increase could mean additional services for schools.

### **Improved Funding Opportunities**

The findings of this section were mixed and inconclusive. Separating the states into the litigation categories should have provided a clearer analysis of the impact that litigation had on revenues in a state. There was some indication that litigation would improve a state's ranking and standard scores, but only those states where plaintiffs won at the supreme court level seemed to have a better chance of improving the ranking and standard scores. States where plaintiffs lost at the supreme court level had a better than 55 percent chance of declining in ranking or standard scores. However, the fact that some states had fallen in ranking and standard scores in Categories I and II did not benefit the hypothesis that states would increase those scores after experiencing litigation.

The purpose for using the ranking and standard scores within the categorical typology was to observe the impact litigation had on certain states in comparison to the national average for PSR levels. The results of both the ranking and standard scores were consistent for most of the states, and this consistency supported their use in the analysis.

Thus, the analysis did not provide incontrovertible support to the hypothesis. This section of the study illustrated some benefits, but the last section would determine if the differences were significant enough to decisively support the use of litigation in raising revenues for a state.

### **Relationship to Litigation**

The last section of the study compared the growth of PSR levels in the different litigation categories. The lack of significance in the categorical factor failed to demonstrate that litigation had any impact in the PSR levels for a state. Thus, even if states where litigation had occurred had increased the PSR levels, that increase was not attributable to the results of the litigation. The conclusion was that the use of litigation could not be supported through demonstrating an increase in revenues for a state after litigation had occurred.

This study supported the conclusion of Heise, that litigation had no impact on spending within a state, but it failed to support the opposite conclusion of Hickrod et al., that litigation would have a positive impact on spending within a state. The findings of the study do not support the concept that litigation is a useless endeavor in education finance reform because litigation had been instrumental in effecting changes in equity within those states that had experienced it.<sup>iii</sup> What this study would support is that litigation is not efficacious in increasing revenues for a state because the increases in revenues cannot be linked to the type of litigation experienced in a state. Thus, litigation may produce equity within a state, but other means will be necessary to develop increased resources.

### **Implications and Suggestions for Future Research**

The findings of this study provided solidification to the relationship of litigation to revenues. At this point in time, litigation cannot be correlated well with revenues, and thus, cannot be utilized justifiably as a mechanism toward increasing revenues for public education. The reason for the increase in revenues for education does not appear to be impacted by whether a state had education finance litigation or not. The question raised by this study, then, is what value has education finance litigation had on the state finance formulas for public education within the United States?

The profusion of finance cases within the United States over the last thirty years (and the feasibility of the continuation of these cases) attest to the certainty that litigation is believed to be a beneficial mechanism toward achieving some type of policy goal. Regarding poor school districts, plaintiffs sought to enhance the spending in poor school districts so that students would receive the same per-dollar amount as students in richer districts. The purpose, then, of education finance litigation was to not only create an equitable system of public funds for education but also to enhance educational spending overall within a state (i.e., plaintiffs wanted states to provide additional spending to raise the per-student dollar amount in poor districts to equal the per-student dollar amounts in rich districts). The result, however, may be increased equity but decreased overall spending per-pupil.<sup>iv</sup> Thus, the end result of education finance litigation may not be the intended highest-level of educational opportunity for all but a type of equitable mediocrity. However, without litigation, equity would not have become a major concern in education finance studies, or in legislative developments within a state. Conclusively,



then, litigation has had an impact on developing equity in state education finance, but it had not impacted revenue increases.

The study did support the fact that revenues were rising for public education during the period of the study, but it did not support the hypothesis that the increase in revenues was attributable to education finance litigation. Future studies should focus on discovering the variables that influence educational revenues for a state. If such variables can be isolated, then ways to manipulate those variables can be researched in order to benefit educational spending. Since litigation does not appear to influence revenues, future research efforts should focus on developing policy procedures that will effectuate the desired revenue changes. However, this study does not support the abolishment of litigation because litigation may be related to increasing equity within a state.<sup>v</sup> Thus, continued efforts in litigating against any inequity should continue within a state should research studies continue to support that equity is correlated to litigation.

Another research focus that can be developed from this study is the relationship between state resources and local resources due to litigation. One hypothesis that was not addressed in this study regarding the research of Hickrod et al.<sup>vi</sup> was the effect that litigation had on changing the resource burden from local to state funds. This study focused on whether resources increased after litigation using combined state and local funds. Hickrod et al. hypothesized that state resources would increase for education spending and local resources would decrease after litigation had occurred. Further research could demonstrate the relationship between state and local resources after

litigation to determine whether there is any significant shift in burden from local to state resources.

Finally, since litigation does not impact revenues, other areas of impact should be investigated. Future studies should further delineation of revenue spending in states and districts to determine any correlation between litigation and certain spending patterns on education. Some research has demonstrated an increase in certain educational expenditures for instructional purposes during the period of modern finance litigation.<sup>vii</sup> The focus of such studies should be concerned with how education dollars are spent on supporting instructional services in school districts as opposed to supporting administrative services. The development of such a focus in future research may help to concentrate more attention on spending in the classroom rather than the larger educational institutions. If future studies demonstrate that more revenues are being spent on increased bureaucracies, then future litigation efforts may be able to provide clear conceptual constructs for courts to review regarding the way education dollars are spent in the states.

### Notes

<sup>i</sup> G. Alan Hickrod et al., The Effect of Constitutional Litigation in Education Finance: A Preliminary Analysis, *Journal of Education Finance* 18, no. 2 (1992): 180-210.

<sup>ii</sup> Michael Heise, The Effect of Constitutional Litigation in Education Finance: More Preliminary Analyses and Modeling, *Journal of Education Finance* 21, no. 2 (1995): 195-216.

<sup>iii</sup> See, e.g., Michael A. Rebell, Fiscal Equity Litigation and the Democratic Imperative, *Journal of Education Finance* 24, no. 1 (1998): 23-50; Patrick F. Galvin, Intradistrict Equity: From the Courts to Resolution, *Journal of Education Finance* 24, no. 1 (1998): 108-130; Peter Jargowsky, Jay Moskowitz and Judy Sinkin, School Finance Reform: Decoding the Simulation Maze, *Journal of Education Finance* 3, no.2 (1977): 199-213; and Robert Berne and Leanna Stiefel, Changes in School Finance Equity: A National Perspective, *Journal of Education Finance* 8, no. 4 (1983): 419-435.

<sup>iv</sup> See, e.g., Neil D. Theobald and Lawrence O. Picus, Living with Equal Amounts of Less: Experiences of States with Primarily State-Funded School Systems, *Journal of Education Finance* 17, no. 1 (1991): 1-6.

<sup>v</sup> See, e.g., Alan G. Hickrod, Ramesh B. Chaudhari, and Ben C. Hubbard, *Reformation and Counter-reformation in Illinois School Finance: 1973-1981* (Normal, IL: Center for the Study of Education Finance, 1981); Martin Feldstein, Wealth Neutrality and Local Choice in Education, *American Economic Review* 65 (March 1975): 75-89; Margaret E. Goertz and Gary Natriello, Court-Mandated School Finance Reform: What do the New Dollars Buy? in *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen (Washington DC: National Academy Press, 1999), 175-208.

<sup>vi</sup> Hickrod et al., The Effect of Constitutional Litigation in Education Finance: A Preliminary Analysis.

<sup>vii</sup> See, e.g., Lawrence O. Picus and Minaz B. Fazal, Why Do We Need to Know What Money Buys?: Research on Resource Allocation Patterns in Elementary and Secondary Schools, in *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger (Thousand Oaks, CA: Corwin Press, Inc., 1995.); Margaret E. Goertz and Gary Natriello, Court-Mandated School Finance Reform: What do the New Dollars Buy? in *Equity and Adequacy*.

## BIBLIOGRAPHY

### Books

- Alexander, Kern, and M. David Alexander. *American Public School Law*, 4th ed. Belmont, CA: West/Wadsworth, 1998.
- David N. Ammons. Adjusting for Inflation When Comparing Revenues or Expenditures. In *Budgeting Formulation and Execution*, eds. Jack Rabin, W. Bartley Hildreth and Gerald J. Miller. Athens Georgia: Carl Vinson Institute of Government, The University of Georgia, 1996, 189-204.
- Barro, Stephen M. *School Finance Equity: Research in the 1980s and the Current State of the Art*. Washington, DC: Decision Resources Corporation, 1987.
- \_\_\_\_\_. The Impact of Intergovernmental Aid on Public School Spending. Ph.D. diss., Stanford University, 1974.
- Berne, Robert, and Leanna Stiefel. "Concepts of School Finance Equity: 1970 to the Present." In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington DC: National Academy Press, 1999, 34-71.
- \_\_\_\_\_ and \_\_\_\_\_. *The Measurement of Equity in School Finance: Conceptual, Methodological and Empirical Dimensions*. Baltimore: The Johns Hopkins University Press, 1984.
- Carr, Melissa C., and Susan H. Fuhrman. The Politics of School Finance in the 1990s. In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington DC: National Academy Press, 1999, 136-174.
- Carroll, Stephen J., Millicent Cox and William Lisowski. *The Search for Equity in School Finance: Results From Five States*. Santa Monica, CA: The Rand Corporation, 1979.
- Chatterjee, Steven and Bruce Price. *Regression Analysis by Example*, 2nd ed. New York: John Wiley & Sons, 1991.
- Clune, William H. III, and Stephen D. Sugarman. *Private Wealth and Public Education*. Cambridge, MA: Harvard University Press, 1970.

- Cohn, Elhcanan. *The Economics of Education*. Cambridge, MA: Ballinger Publishing Company 1979.
- Coleman, James, Ernest Q. Campbell, Carol J. Hobson, James McPartland, Alexander M. Mood, Frederic D. Weinfield, and Robert L. York. *Equality of Educational Opportunity*. Washington, DC: Department of Health, Education, and Welfare, 1966.
- Coons, John E., William H. Clune, and Stephen D. Sugarman. *Private Wealth and Public Education*. Cambridge, MA: Harvard University Press, 1970.
- Cubberly, Elwood P. *School Funds and Their Apportionment*. New York: Columbia University, 1906.
- Cyr, Frank W., Arvid J. Burke, Paul R. Mort. *Paying for Our Public Schools*. Scranton, PA: International Textbook Company 1938.
- Elmore, Richard and Milbrey Wallin McLaughlin. *Steady Work: Policy, Practice, and the Reform of American Education*. Santa Monica, CA: Rand, 1988.
- Evans, William N., Sheila E. Murray, and Robert M. Schwab. The Impact of Court-Mandated School Finance Reform. In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington DC: National Academy Press, 1999, 72-98.
- Goertz, Margaret E. and Gary Natriello. Court-Mandated School Finance Reform: What Do the New Dollars Buy? In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington DC: National Academy Press, 1999, 99-135.
- Grubb, W. Norton, and Stephen Michelson. *States and Schools*. Lexington, MA: D.C. Heath, 1974.
- Guthrie, James W., and Richard Rothstein. Enabling Adequacy to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements. In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington DC: National Academy Press, 1999, 211-212.
- Hanushek, Eric A. The Quest for Equalized Mediocrity: School Finance Reform Without Consideration of School Performance. In *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger. Thousand Oaks, CA: Corwin Press, Inc., 1995, 198.

- Hertert, Linda. "Does Equal Funding for Districts Mean Equal Funding for Classroom Students?: Evidence from California." In *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger. Thousand Oaks, CA: Corwin Press, Inc., 71-84.
- Hickrod, Alan G., Ben C. Hubbard, and Thomas Wei-chi Yang. *The 1973 Reform of the Illinois General Purpose Grant in Aid*. Normal, Illinois: Department of Educational Administration, Illinois State University, 1973.
- \_\_\_\_\_, Ramesh B. Chaudhari, and Ben C. Hubbard. *Reformation and Counter-reformation in Illinois School Finance: 1973-1981*. Normal: Center for the Study of Education Finance, 1981.
- Huck, Schuyler W. and William H. Cormier. *Reading Statistics and Research*, 2nd ed. New York: Harper Collins College Publishers, 1996.
- Jencks, Christopher, Marshall Smith, Henry Aeland, Mary Jo Bane, David Cohen, Herbert Gintis, Barbara Heyn, and Stephan Michelson. *Inequality: A Reassessment of the Effect of Family and Schooling in America*. New York: Harper and Row 1972.
- Johns, Roe L., and Edgar L. Morphet. *The Economics and Financing of Education*. Englewood Cliffs, NJ: Prentice Hall, Inc., 1975.
- Kozol, Jonathan. *Savage Inequalities*. New York: Crown Publishers, Inc., 1991.
- Laine, Richard D., Rob Greenwald, and Larry V. Hedges. Money Does Matter: A Research Synthesis of a New Universe of Education Production Function Studies. In *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger. Thousand Oaks, CA: Corwin Press, Inc., 1995, 44-70.
- Mason, E. J., and W.J. Bramble. *Understanding and Conducting Research: Application in Education and the Behavioral Sciences*, 2nd ed. New York: McGraw-Hill, 1989.
- National Center for Education Statistics. *Digest of Education Statistics: 1966-1997*. Washington, DC: GPO, 1966-1997.
- National Center for Education Statistics. *Developments in School Finance 1997*. Washington, DC: GPO, 1997.

- Picus, Lawrence O., and Minaz B. Fazal. Why Do We Need to Know What Money Buys?: Research on Resource Allocation Patterns in Elementary and Secondary Schools. In *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger. Thousand Oaks, CA: Corwin Press, Inc., 1995, 1-19.
- Minorini, Paul A., and Stephen D. Sugarman. Educational Adequacy and the Courts: The Promise and Problems of Moving to a New Paradigm. In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington DC: National Academy Press, 1999, 175-208.
- \_\_\_\_ and \_\_\_\_\_. "School Finance Litigation in the Name of Educational Equity: Its Evolution, Impact, and Future." In *Equity and Adequacy in Education Finance*, eds. Helen F. Ladd, Rosemary Chalk, and Janet S. Hansen. Washington, DC: National Academy Press, 1999, 34-70.
- Morrison, Henry C. *School Revenue*. Chicago: University of Chicago Press, 1930.
- Mort, Paul R., *The Measurement of Educational Need*. New York: Columbia University Teachers College, 1924.
- National Commission on Excellence in Education. *A Nation at Risk: The Imperative for Educational Reform*. Washington, DC: U.S. Government Printing Office 1983.
- Peterson, George. Voter Demand for Public School Expenditures. In *Public Needs and Private Behavior in Metropolitan Areas*, ed. John Jackson. Cambridge: Harvard University Press, 1975.
- Pfaffenberger, Roger C., and James H. Patterson. *Statistical Methods for Business and Economics*. Homewood, IL: Irwin, 1987.
- Schwartz, Myron, and Jay Moskowitz. *Fiscal Equity in the United States, 1984-85*. Washington, DC: Decision Resources Corporation, 1988.
- Shavelson, Richard J. *Statistical Reasoning for the Behavioral Sciences*, 3rd ed. Boston: Allyn and Bacon, 1996.
- Strayer, George D., and Robert M. Haig. *The Financing of Education in the State of New York*. A report reviewed and presented by The Educational Finance Inquiry Commission under the auspices of the American Council on Education, Washington, DC. New York: The Macmillan Company 1923.

- Sunstein, Cass R., *The Partial Constitution*. Canbridge, MA: Harvard University Press, 1993.
- Thompson, David C., R. Craig Wood, and David S. Honeyman. *Fiscal Leadership for Schools: Concepts and Practices*. New York: Longman, 1994.
- Updegraff, Harlan and L. A. King. *Survey of the Fiscal Policies of the State of Pennsylvania in the Field of Education (1922)*.
- Ward, James Gordon. Implementation and Monitoring of Judicial Mandates: An Interpretative Analysis. In *The Impacts of Litigation and Legislation on Public School Finance*, eds. Julie K. Underwood and Debra A. Versteegen. New York: Harper Row, 1990, 75-94.
- Wise, Arthur, *Rich Schools, Poor Schools: The Promise of Equal Educational Opportunity*. Chicago: University of Chicago Press 1968.
- Wood, R. Craig, and Jeffrey Maiden, Resource Allocation Patterns Within School Finance Litigation Strategies. In *Where Does the Money Go?: Resource Allocation in Elementary and Secondary Schools*, eds. Lawrence O. Picus and James L. Wattenbarger. Thousand Oaks, CA: Corwin Press, Inc., 1995, 197-211.
- Wood, R. Craig, and David C. Thompson. *Education Finance Law: Constitutional Challenges to State Aid Plans--An Analysis of Strategies*, 2nd ed. Topeka, KS: National Organization on Legal Problems of Education, 1996.
- Yang, Thomas Wei-chi. *Measurement of School Revenue Equity in the States of Illinois, Michigan and Kansas*. Normal: Illinois State University, 1975.

### Articles

- Addonizio, Michael F., C. Philip Kearney and Henry J. Prince. Michigan s High Wire Act. *Journal of Education Finance* 20, no. 3 (1995): 235-269.
- Alexander, Kern. The Potential of Substantive Due Process for School Finance Litigation. *Journal of Education Finance* 6, no. 4 (1981): 456-470.
- \_\_\_\_\_. The Wealth Tax as an Alternative Revenue Source for Public Schools. *Journal of Education Finance* 2, no. 4 (1977): 451-480.
- \_\_\_\_\_. John Brock, Larry Forgy, James Melton, and Sylvia Watson. Constitutional Intent: System, Common, and Efficient as Terms of Art. *Journal of Education Finance* 15, no. 2 (1989): 142-162.



- \_\_\_\_\_ and Lee Shiver. Equalization Among Florida School Districts. *Journal of Education Finance* 9, no. 1 (1983): 53-62.
- Alexander, M. David, Mary Jane Connelly, and Richard G. Salmon. An Update in Public School Finance Litigation. *Journal of Education Finance* 10, no. 2 (1984): 135-149.
- Augenblick, John, and C. Kent McGuire. Changes in the Equity of School Finance Systems in Oklahoma, Delaware, and Alaska. *Journal of Education Finance* 8, no. 4 (1983): 436-448.
- Barwick, Woody. A Chronology of the Kentucky Case. *Journal of Education Finance* 15, no. 2 (1989): 136-141.
- Berne, Robert. "Equity Issues in School Finance." *Journal of Education Finance* 14, no. 2 (1988): 159-80, 177.
- \_\_\_\_\_, and Leanna Stiefel. Changes in School Finance Equity: A National Perspective. *Journal of Education Finance* 8, no. 4 (1983): 419-435.
- \_\_\_\_\_, and \_\_\_\_\_. Taxpayer Equity in School Finance Reform: The School Finance and Public Finance Perspectives. *Journal of Education Finance* 5, no. 1 (1979): 36-54.
- \_\_\_\_\_, and \_\_\_\_\_. The Equity of School Finance Systems Over Time: The Value Judgments Inherent in Evaluation. *Education Administration Quarterly* 15, no. 1 (1979): 14-34.
- Brown, Carvin L. The Adequate Program for Education in Georgia. *Journal of Education Finance* 3, no. 4 (1978): 402-411.
- Brown, Lawrence L. III, Alan L. Ginsburg, J. Neil Killalea, Richar A. Rosthal, Esterh O. Tron. *School Finance Reform in the Seventies: Achievements and Failures*. A report for the Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health, Education and Welfare, and Killalea Associates, Inc. September 1977.
- \_\_\_\_\_. School Finance Reform in the Seventies: Achievements and Failures. *Journal of Education Finance* 4, no. 2 (1978): 195-212.
- Bursley, Gilbert E. The Political Strategies and Fiscal Ramifications of Educational Finance Reform. *Journal of Education Finance* 1, no. 1 (1975): 1-18.

- Byron, Richard E. Equalization of Educational Opportunity in Indiana. *Journal of Education Finance* 3, no. 4 (1978): 432-442.
- Camp, William E., and David C. Thompson. School Finance Litigation: Legal Issues and Politics of Reform. *Journal of Education Finance* 14, no. 2 (1988): 221-238.
- Campbell, Richard W. Education Governance: Political Turbulence and School Finance Reform in New Jersey. *Journal of Education Finance* 5, no. 2 (1979): 149-172.
- Childs, T. Stephen, and Charol Shakeshaft. A Meta-Analysis of Research on the Relationship Between Education Expenditures and Student Achievement. *Journal of Education Finance* 12, no. 2 (1986): 249-263.
- Clune, William. The Shift from Equity to Adequacy in School Finance. *U. Mich. J.L. Reform* 28 (1995): 481-491.
- \_\_\_\_\_. Accelerated Education as a Remedy for High-Poverty Schools. *U. Mich. J.L. Reform* 28 (1995): 492-504.
- Cohn, Elchanan, and Melinda S. Smith. A Decade of Improvement in Wealth Neutrality: A Study of School Finance Equity in South Carolina, 1977-1986. *Journal of Education Finance* 14, no. 3 (1989): 380-389.
- Colton, David L. The Weighting Game: Two Decades of Fiscal Neutrality in New Mexico. *Journal of Education Finance* 22, no. 1 (1996): 28-59.
- Connelly, Mary Jane and Jack McGee. School Finance Litigation of the 1980s. *Journal of Education Finance* 12, no. 4 (1987): 578-591.
- Coons, John E., William H. Clune and Stephen D. Sugarman. Educational Opportunity: A Workable Constitutional Test for State Financial Structures. *California Law Review* 57 (1969): 305-421.
- \_\_\_\_\_. Can Education Be Equal and Excellent? *Journal of Education Finance* 4, no. 2 (1978): 147-157.
- Cooper, Bruce S., Robert Sarrel, Peter Darvas, Frank Alfano, Eddie Meier, Judith Samuels, and Susan Heinbuch. Making Money Matter in Education: A Micro-Financial Model for Determining School-Level Allocations, Efficiency, and Productivity. *Journal of Education Finance* 20, no. 1 (1994): 66-87.

- Crampton, Faith E. Adequacy and Stability in Oregon School Finance. *Journal of Education Finance* 15, no. 3 (1990): 351-375.
- \_\_\_\_\_. The Measurement of Efficiency and Equity in Oregon School Finance: The Beginning Stages. *Journal of Education Finance* 16, no. 3 (1991): 348-359.
- Cronk, Cynthia A. and Gary P. Johnson. An Equity Analysis of Pennsylvania's Basic Instruction Subsidy Program, 1977-80. *Journal of Education Finance* 8, no. 4 (1983): 502-510;
- Dayton, John. "Examining the Efficacy of Judicial Involvement in Public School Funding Reform," *Journal of Education Finance*, 22 (1996) 2-3.
- \_\_\_\_\_. An Examination of Judicial Treatment of Rural Schools in Public School Funding Equity Litigation. *Journal of Education Finance* 24, no. 2 (1998): 179-205.
- Dively, John A., and G. Alan Hickrod. Update of Selected States' School Equity Funding Litigation and the Boxscore. *Journal of Education Finance* 17, no. 4 (1992): 352-363.
- Edlefson, Carla. Progress Toward Equity in Ohio. *Journal of Education Finance* 8, no. 4 (1983): 511-522.
- Enrich, Peter. Leaving Equality Behind: New Directions in School Finance Reform. *Vand. L. Rev.* 48 (1995): 101-194.
- Fastrup, Jerry C. Fiscal Equalization and Access to Educational Resources in the New England States. *Journal of Education Finance* 22, no. 4 (1997): 368-393.
- Feldstein, Martin. Wealth Neutrality and Local Choice in Education. *American Economic Review* 65 (March 1975): 75-89.
- Fischel, William A. Did Serrano Cause Proposition 13? *National Tax Journal* 42 (1989): 465-473.
- Flanigan, J. L. West Virginia's Financial Dilemma: The Ideal School System in the Real World. *Journal of Education Finance* 15, no. 2 (1989): 229-243.
- Fortune, Jim C., and John S. O Neil. Production Function Analyses and the Study of Educational Funding Equity: A Methodological Critique. *Journal of Education Finance* 20, no. 1 (1994): 21-46.

- Fuhrman, Susan. The Politics and Process of School Finance Reform. *Journal of Education Finance* 4, no. 2 (1978): 158-178.
- Fulton, Mary L. Courts Play a Bigger Role in Finance. *State Education Leader* 13, no. 2 (1994).
- Furno, Orlando F. State Equalization Plans Under Section 842. *Journal of Education Finance* 6, no. 3 (1981): 375-386.
- Galvin, Patrick F. Intradistrict Equity: From the Courts to Resolution. *Journal of Education Finance* 24, no. 1 (1998): 108-130.
- Geske, Terry G., and Richard A. Rossmiller. The Politics of School Finance Reform in Wisconsin. *Journal of Education Finance* 2, no. 4 (1977): 513-532.
- Goertz, Margaret E. School Finance in New Jersey: A Decade After Robinson v. Cahill. *Journal of Education Finance* 8, no. 4 (1983): 475-489.
- \_\_\_\_\_. School Finance Reform in New Jersey: The Saga Continues. *Journal of Education Finance* 18, no. 4 (1993): 346-365.
- \_\_\_\_\_ and Janet Hannigan. Delivering a Thorough and Efficient Education in New Jersey: The Impact of an Expanded Arena of Policy Making. *Journal of Education Finance* 4, no. 1 (1978): 46-64.
- Goertz, Robert K. and Margaret E. Goertz. The Quality Education Act of 1990: New Jersey Responds to *Abbott v. Burke*. *Journal of Education Finance* 16, no. 1 (1990): 104-114.
- Goettel, Robert J., and Robert E. Firestine. Declining Enrollments and State Aid: Another Equity and Efficiency Problem. *Journal of Education Finance* 1, no. 4 (1975): 202-215.
- Goetz, Stephen J., and David L. Debertin. Rural Areas and Education Reform in Kentucky: An Early Assessment of Revenue Equalization. *Journal of Education Finance* 18, no. 2 (1992): 163-179.
- Goodman, Richard H. Rich Town, Poor Town: School Finance Lawsuit Filed in New Hampshire. *Journal of Education Finance* 7, no. 4 (1982): 484-487.
- Green, Preston. Equity, Adequacy and Efficiency in New York City School Finance Litigation. *Journal of Education Finance* 22, no. 1 (1996): 88-113.

- Greene, Kenneth V. The Equalizing Effects of District Power Equalization: A Review of the Economics Literature. *Journal of Education Finance* 5, no. 2 (Fall, 1979): 187-214.
- Grossman, Mark S. Oklahoma School Finance Litigation: Shifting From Equity to Adequacy. *U. Mich. J.L. Reform* 28 (1995): 518-527.
- Guess, Arnold. Financing Kentucky's Elementary Secondary Education Program. *Journal of Education Finance* 3, no. 4 (1978): 443-449.
- Hanashek, Eric A. The Economics of Schooling: Production and Efficiency in Public Schools. *Journal of Economic Literature* 24 (1986): 1141-1177.
- \_\_\_\_\_. The Impact of Differential Expenditures on School Performance. *Educational Researcher*, 18 (1989): 45-65.
- \_\_\_\_\_. Throwing Money at Schools. *Journal of Policy Analysis and Management* 1 (1981): 19-41.
- \_\_\_\_\_. When School Finance Reform May Not Be a Good Policy. *Harvard Journal on Legislation* 28 (1991): 423-456.
- Harris, Russell. Act 59 and the Prospects for Reforming School Finance in Pennsylvania. *Journal of Education Finance* 3, no. 4 (1978): 487-501;
- Hartman, William T. Education Funding Disparities: What Do the Dollars Buy? *Journal of Education Finance* 24, no. 3 (1995): 390-405.
- \_\_\_\_\_. District Spending Disparities Revisited. *Journal of Education Finance* 20, no. 1 (1994): 88-106.
- Hayden, F. Gregory. An Algorithm for Deriving Fiscal Equity Indicators of a School Financing Structure. *Journal of Education Finance* 6, no. 1 (1980): 94-111.
- Hedges, Larry V. and Richard D. Laine. When Reinventing the Wheel is Not Necessary: A Case Study in the Use of Meta-Analysis in Education Finance. *Journal of Education Finance* 20, no. 1 (1994): 1-20.
- \_\_\_\_\_, Richard D. Laine, and Rob Greenwald. Does Money Matter?: A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes. *Educational Researcher* 23, no. 3 (1994): 5-14.
- Heinhold, Dan. Impact of Federal Monies on Equity Among States in K-12 Public School Finance. *Journal of Education Finance* 8, no. 4 (1983): 461-474.

- Heise, Michael. "Equal Educational Opportunity, Hollow Victories, and the Demise of School Finance Equity Theory: An Empirical Perspective and Alternative Explanations," *Ga. L. Rev.* 32 (1995): 540-555.
- \_\_\_\_\_. "The Effect of Constitutional Litigation on Education Finance: More Preliminary Analyses and Modeling," *Journal of Education Finance* 21, no. 2 (1995): 195-216.
- \_\_\_\_\_. State Constitutions, School Finance Litigation, and the Third Wave: From Equity to Adequacy, *Temple L. Rev.* 68 (1995): 1150-1171.
- Henderson, Richard L. An Analysis of Selected School Finance Litigation and Its Impact Upon State Education Legislation. *Journal of Education Finance* 17, no. 2 (1991): 193-214.
- Hertert, Linda, Carolyn Bush, and Allan Odden. School Finance Inequities Among the States: The Problem from a National Perspective. *Journal of Education Finance* 19, no. 3 (1994): 231-255.
- Hickrod, G. Alan, Edward R. Hines, Edward P. Anthony, John A. Dively, Gwen B. Pruyn. The Effect of Constitutional Litigation on Educational Finance: A Preliminary Analysis. *Journal of Education Finance* 18, no. 2 (1992): 180-210.
- \_\_\_\_\_. "The Effect of Constitutional Litigation on Educational Finance: A Further Analysis," in *Selected Papers in School finance 1995* [database on-line]; available from <http://nces.gov/pubs97/97536-3.html>.
- \_\_\_\_\_, Ramesh B. Chaudhari, and Benjamin C. Hubbard. The Decline and Fall of School Finance Reform in Illinois. *Journal of Education Finance* 9, no. 1 (1983): 17-38;
- \_\_\_\_\_, Ramesh B. Chaudhari, and Virginia Lundeen. Progress Toward School Finance Equity Goals in Indiana, Iowa, and Illinois. *Journal of Education Finance* 6, no. 2 (1980): 176-200.
- \_\_\_\_\_, and Margaret E. Goertz. Introduction: Evaluating the School Finance Reforms of the 1970s and Early 1980s. *Journal of Education Finance* 8, no. 4 (1983): 415-418.
- \_\_\_\_\_, and Ben C. Hubbard. The 1973 School Finance Reform in Illinois: Quo Jure? Quo Vadis? *Journal of Education Finance* 3, no. 4 (1978): 412-431.
- Hirth, Marilyn A. A Multistate Analysis of School Finance Issues and Equity Trends in Indiana, Illinois, and Michigan, 1982-1992: The Implications for 21st Century School Finance Policies. *Journal of Education Finance* 20, no. 2(1994): 163-190.

- Hopeman, Alan. Education Finance Legislation in Minnesota in 1985. *Journal of Education Finance* 11, no. 1 (1985): 112-121.
- Horowitz, Harold. Unseparate but Unequal: The Emerging Fourteenth Amendment Issue in Public School Education, *UCLA Law Review* 13 (1966): 1147-1172.
- and David Neitring. Equal Protection Aspects of Inequalities in Public Education and Public Assistance Programs from Place to Place Within a State, *UCLA Law Review* 15 (1968): 787-816.
- Hudson, C. Cale. An Overview of School Finance in Nebraska. *Journal of Education Finance* 3, no. 4 (1978): 476-486.
- Inman, Robert. Optimal Fiscal Reform of Metropolitan Schools: Some Simulation Results. *American Economic Review* 68 (March 1978): 107-122.
- and David Wolf. SOFA: Assimilation Program for Predicting and Evaluating the Policy Effects of Grants-in-Aid. *Socio-Economic Planning Sciences* 10 (June 1976): 77-88.
- Jargowsky, Peter, Jay Moskowitz, and Judy Sinkin. School Finance Reform: Decoding the Simulation Maze. *Journal of Education Finance* 3, no. 2 (1979): 199-213.
- Jennings, John F. School Finance Reform: The Challenge Facing Connecticut. *Journal of Education Finance* 4, no. 4 (1979): 395-414.
- Johns, Roe L. Analytical Tools in School Finance Reform. *Journal of Education Finance* 2, no. 4 (1977): 499-508.
- . Improving the Equity of School Finance Programs. *Journal of Education Finance* 1, no. 4 (1976): 540-549, 540.
- Johns, Thomas L. 1975 School Aid Legislation: A Look at Three States. *Journal of Education Finance* 1, no. 3 (1976): 397-406.
- , and Dexter A. Magers. Measuring the Equity of State School Finance Programs. *Journal of Education Finance* 3, no. 4 (1978): 373-385.
- Johnson, Carolyn E. and Robert G. Lehn. Reforming Indiana's School Finance Formula, 1973-1990: A Case of Unanticipated Outcomes. *Journal of Education Finance* 18, no. 3 (1993): 264-280.

- Johnson, Gary, and M. George Pillianayagam. A Longitudinal Equity Study of Ohio's School Finance System: 1980-1989. *Journal of Education Finance* 17, no. 4 (1991): 60-82.
- Kaiser, Harry M., and Glenn L. Nelson. Inequality and the Minnesota Referendum Levy. *Journal of Education Finance* 8, no. 2 (1982): 152-169.
- Kearney, C. Philip and Li-Ju Chen. Measuring Equity in Michigan School Finance: A Further Look. *Journal of Education Finance* 14, no. 3 (1989): 319-367.
- Kelly, Philip T. South Carolina's New School Finance Law. *Journal of Education Finance* 3, no. 4 (1978): 515-523.
- King, Richard A. Equalization in New Mexico School Finance. *Journal of Education Finance* 9, no. 1 (1983): 63-78.
- \_\_\_\_\_, and Bettye MacPhail-Wilcox. Unraveling the Production Equation: The Continuing Quest for Resources That Make a Difference. *Journal of Education Finance* 20 (1994): 47-65.
- Kirk, L. Roger. The South Carolina Educational Improvement Act of 1984. *Journal of Education Finance* 11, no. 1 (1985): 132-145.
- Krueger, Jo Ann. The Politics of School Finance: New Mexico Passes a State Funding Formula. *Journal of Education Finance* 1, no. 1 (1975): 86-95.
- Krupey, Joyce E., and Alan Hopeman. Minnesota School Finance Equity, 1973-1982. *Journal of Education Finance* 8, no. 4 (1983): 490-501.
- Ladd, Helen F. Local Education Expenditures, Fiscal Capacity and the Composition of the Property Tax Base. *National Tax Journal* 28 (June 1975): 145-158.
- \_\_\_\_\_. State-Wide Taxation of Commercial and Industrial Property for Education. *National Tax Journal* 29 (June 1976): 143-154.
- Lakshmanan, Indira A. R. "New Jersey Schools Offer Omen for Massachusetts." *Boston Sunday Globe*, 20 June 1993, 1.
- Lee, Carl M.-S., I-Ming W. Aron and Robert H. Aron. An Analysis of Michigan Educational Assessment Program (MEAP) Scores and School District Revenues and Expenditures. *Journal of Education Finance* 13, no. 4 (1988): 496-511.



- Levin, Betsy. New Legal Challenges in Educational Finance. *Education Finance* 3, no. 1 (1977): 54-69.
- Levine, Gail F. Meeting the Third Wave: Legislative Approaches to Recent Judicial School Finance Ruling. *Harv. J. on Legis.* 28 (1991): 500-5015.
- Lovett, Michael J. and Van D. Mueller. Equity and Equalization in Minnesota School Finance. *Journal of Education Finance* 3, no. 4 (1978): 450-464.
- Lows, Raymond L. Elements of Inequity in Illinois School Finance. *Journal of Education Finance* 11, no. 1 (1985): 40-55.
- MacPhail-Wilcox, Bettye. Fiscal Equity for Public Schools in a Nonreform State: North Carolina, 1975 to 1983. *Journal of Education Finance* 10, no. 4 (1985): 417-425.
- \_\_\_\_\_. and Richard King. Production Functions Revisited in the Context of Educational Reform. *Journal of Educational Finance* 12, no. 2 (1986): 191-222.
- McCarthy, Martha M. What Happened to Equal Protection of the Laws? *Journal of Education Finance* 2, no. 1 (1976): 88-98,
- \_\_\_\_\_. The Levittown Case. *Journal of Education Finance* 8, no. 1 (1982): 101-105.
- McMillan, Kevin Randall. Note: The Turning Tide: The Emerging Fourth Wave of School Finance Reform Litigation and the Courts Linger Institutional Concerns. *Ohio St. L.J.* 58 (1998): 1864-1871.
- Meckley, Richard F. Court Grants Education a Preferred Funding Status in West Virginia. *Journal of Education Finance* 7, no. 2 (1982): 227-229.
- \_\_\_\_\_. Education Finance: Legal Bombshell in West Virginia. *Journal of Education Finance* 8, no. 3 (1983): 409-413.
- \_\_\_\_\_. Funding Impediments to Education Reform in West Virginia. *Journal of Education Finance* 12, no. 2 (1986): 295-297.
- Menz, Frederic C. and Arnold H. Raphaelson. Some Issues in Equalizing Educational Spending. *Journal of Education Finance* 2, no. 1 (1976): 99-109.
- Meyers, Theodore J., Thomas C. Valesky and Marilyn A. Hirth. K-12 Education Funding in Tennessee: Equity Now-Adequacy Coming. *Journal of Education Finance* 20, no. 4 (1995): 394-409.

- Mockler, John B. and Gerald Hayward. School Finance in California: Pre-Serrano to the Present. *Journal of Education Finance* 3, no. 4 (1978): 386-401.
- Morgan, Edward. Obstacles to Educational Equity: State Reform and Local Response in Massachusetts, 1978-1983. *Journal of Education Finance* 10, no. 4 (1985): 441-459.
- Morgan, Martha I., Adam S. Cohen, and Helen Hershkoff. Establishing Education Program Inadequacy: The Alabama Example. *U. Mich. J.L. Reform* 28 (1995): 550-565.
- Moskowitz, Jay, and Joel D. Sherman. School Finance Litigation: The Use of Data Analysis. *Journal of Education Finance* 4, no. 3 (1979): 322-332.
- Nwabauogu, Michael N. On the Meaning and Application of Equal Educational Opportunity: A Review Article. *Journal of Education Finance* 10, no. 1 (1984): 64-82.
- Odden, Alan. Missouri's New School Finance Structure. *Journal of Education Finance* 3, no. 4 (1978): 465-475.
- \_\_\_\_\_. School Finance Reform in Kentucky, New Jersey and Texas. *Journal of Education Finance* 18, no. 4 (1993): 293-317.
- \_\_\_\_\_, Carolyn Busch, and Linda Hertert. The Intricacies of Reforming School Finance and Providing Property Tax Relief in Wisconsin. *Journal of Education Finance* 21, no. 3 (1996): 321-342.
- Peevely, Gary L. and John R. Ray. Equity as Determined by Locally Funded Teaching Positions in Tennessee Schools. *Journal of Education Finance* 15, no. 2 (1989): 189-204.
- Peternick, Lauri. "The Effect of Overturning Educational Funding Practices Through the State Courts on Overall Per Pupil Expenditures." (A paper presented at the annual meeting of the American Education Finance Association, Savannah, GA, March 1995).
- Phelps, James L., and Michael F. Addonizio. Michigan Public School Finance: The Last Ten Years. *Journal of Education Finance* 9, no. 1 (1983): 5-16.
- Picus, Lawrence O. An Update on California School Finance 1992-93: What Does the Future Hold? *Journal of Education Finance* 18, no. 2 (1992): 142-162.

- \_\_\_\_\_. Cadillacs or Chevrolets?: The Evolution of State Control over School Finance in California. *Journal of Education Finance* 17, no. 4 (1991): 33-59.
- \_\_\_\_\_, and Linda Hertert. Three Strikes and You're Out: Texas School Finance after Edgewood III. *Journal of Education Finance* 18, no. 4 (1993): 366-389.
- Prince, Henry. Michigan's School Finance Reform: Initial Pupil-Equity Results. *Journal of Education Finance* 22, no. 4 (1997): 394-409.
- Rebell, Michael A. Fiscal Equity Litigation and the Democratic Imperative. *Journal of Education Finance* 24, no. 1 (1998): 23-50.
- Richardson, George P., and Robert E. Lamitie. Improving Connecticut School Aid: A Case Study with Model-Based Policy Analysis. *Journal of Education Finance* 15, no. 2 (1989): 169-188.
- Rydell, Lars H. Equity for Taxpayers and Equal Opportunity for Students in Maine. *Journal of Education Finance* 9, no. 1 (1983): 39-52.
- Salmon, Richard G., and Ralph J. Shtowell. Virginia School Finance Reform: Status Quo Maintained. *Journal of Education Finance* 3, no. 4 (1978): 524-535.
- Sample, Patricia R., and William T. Hartman. An Equity Simulation of Pennsylvania's School Finance System. *Journal of Education Finance* 16, no. 1 (1990): 49-69.
- Sielke, Catherine C. Michigan School Facilities, Equity Issues, and Voter Response to Bond Issues Following Finance Reform. *Journal of Education Finance* 23, no. 3 (1998): 309-322.
- Silva, Frank, and John Sonstelie. Did *Serrano* Cause a Decline in School Spending? *National Tax Journal* 47 (1995): 199-216.
- Skloot, Floyd. School Finance Reform in a Time of Fiscal Stringency: The Illinois Situation. *Journal of Education Finance* 2, no. 4 (1977): 533-542.
- Smith, Margaret D., and Perry A. Zirkel. *Pauley v. Kelly*: School Finances and Facilities in West Virginia. *Journal of Education Finance* 13, no. 3 (1988): 264-273.
- Stern, David. Effects of Alternative State Aid Formulas on the Distribution of Public School Expenditures in Massachusetts. *Review of Economics and Statistics* 55 (February 1973): 91-97.
- Stevens, Nancy. Texas School Finance System: New Legislation. *Journal of Education Finance* 15, no. 2 (1989): 269-277.

- Stiefel, Leanna, and Robert Berne. "The Equity Effects of State School Finance Reforms: A Methodological Critique and New Evidences." *Policy Sciences* 75 (1981).
- Sunderman, Harold and Reg Hinely. Toward Equality of Educational Opportunity: A Case Study and Projection. *Journal of Education Finance* 4, no. 4 (1979): 436-450.
- Theobald, Neil D. and Lawrence O. Picus. Living with Equal Amounts of Less: Experiences of States with Primarily State-Funded School Systems. *Education Finance* 17, no. 1 (1991): 1-6.
- Thompson, David C., David S. Honeyman, and R. Craig Wood. The Kansas School District Equalization Act: A Study of Fiscal Equity of Funding Categories. *Journal of Education Finance* 19, no. 1 (1993): 36-68.
- Thro, William E. "Judicial Analysis During the Third Wave of School Finance Litigation: The Massachusetts Decision as a Model." *B. C. L. Rev.* 35 (1994): 597-618.
- \_\_\_\_\_. "The Third Wave: The Impact of the Montana, Kentucky, and Texas Decisions on the Future of Public School Finance Reform Litigation." *J. of L. & Educ.* 19 (1995): 212-229.
- \_\_\_\_\_. "To Render Them Safe: The Analysis of State Constitutional Provisions In Public School Finance Reform Litigation." *Va. L. Rev.* 75 (1996): 512-545.
- Trimble, C. Scott and Andrew C. Forsaith. Achieving Equity and Excellence in Kentucky Education. *U. Mich. J.L. Reform* 28 (1995): 420-457.
- Underwood, Julie K. Changing Equal Protection Analyses in Finance Equity Litigation. *Journal of Education Finance* 14, no. 3 (1989): 413-425.
- \_\_\_\_\_. School Finance Adequacy as Vertical Equity. *U. of Mich. J. of L. Reform* 28 (1996): 493-519.
- \_\_\_\_\_, and William E. Sparkman. School Finance Litigation: A New Wave of Reform. *Harv. J.L. & Pub. Pol y* 14 (1991): 514-521.
- Verstegen, Debra A. Efficiency and Equity in the Provision and Reform of American Schooling. *Journal of Education Finance* 20, no. 1 (1994): 107-131.
- \_\_\_\_\_. Equity in State Education Finance: A Response to Rodriguez. *Journal of Education Finance* 12, no. 3 (1981): 315-330.
- \_\_\_\_\_. Financing Education Reform: Where Did All the Money Go? *Journal of Education Finance* 19, no. 1 (1993): 1-35.

- \_\_\_\_\_. Concepts and Measures of Fiscal Inequality: A New Approach and Effects of Five States. *Journal of Education Finance* 22, no. 2 (1996): 145-16.
- \_\_\_\_\_ and Richard G. Salmon. The Conceptualization and Measurement of Equity in School Finance in Virginia. *Journal of Education Finance* 15, no. 2 (1989): 205-228.
- \_\_\_\_\_ and \_\_\_\_\_. Assessing Fiscal Equity in Virginia: Cross-Time Comparisons. *Journal of Education Finance* 16, no. 4 (1991): 417-430.
- Vinik, D. Frank. The Contrasting Politics of Remedy: The Alabama and Kentucky School Equity Funding Suits. *Journal of Education Finance* 22, no. 1 (1996): 60-87.
- Walker, Billy D., and John D. Thompson. Special Report: The Texas Supreme Court and Edgewood I.S.D. v. Kirby. *Journal of Education Finance* 15, no. 3 (1990): 414-428.
- Walters, Lawrence C., and Mark A. Freeman. An Assessment of Educational Spending and Equity in Utah Using Data Envelopment Analysis. *Journal of Education Finance* 19, no. 2 (1993): 122-156.
- Ward, Cynthia V. L. State Support for Rhode Island Public School Operations: An Explanation and Critique. *Journal of Education Finance* 3, no. 4 (1978): 502-514.
- Ward, James Gordon. Consensus Politics and Local Control: The 1985 Illinois Education Reform Package. *Journal of Education Finance* 11, no. 3 (1986): 377-384.
- \_\_\_\_\_. In Pursuit of Equity and Adequacy: Reforming School Finance in Illinois. *Journal of Education Finance* 12, no. 1 (1987): 107-120.
- \_\_\_\_\_. The Political Ecology of Reform: American Public School Finance in the 1970s and 1980s. *Journal of Education Finance* 14, no. 2 (1988): 181-199.
- \_\_\_\_\_, and William E. Camp. An Analytic View of Two Decades of Reform in School Finance: Some Comments. *Journal of Education Finance* 14, no. 1 (1988): 1-6.
- Weidmann, Maja B. and Lloyd E. Frohreich. Expenditures in Wisconsin School Districts: A Comparative Analysis of Zero-Aid and Positive-Aid Districts. *Journal of Education Finance* 16, no. 1 (1990): 93-103.

- Weischadle, David E. New Jersey: A Case Study in the Politics of Public School Finance. *Journal of Education Finance* 3, no. 2 (1979): 259-264.
- White, Robert N. Indiana Public School State Formula Grants-Fair or Unfair? *Journal of Education Finance* 17, no. 2 (1991): 215-223.
- Wickert, Donald. Some School Finance Issues Related to the Implementation of Serrano and Proposition 13. *Journal of Education Finance* 10, no. 4 (1985): 535-542.
- Williams, Mary Frase. Small Change: Maryland's Progress Toward Greater School Finance Equity. *Journal of Education Finance* 9, no. 1 (1983): 97-115.
- Wood, R. Craig. School Finance in the 1990s (A paper presented at the National Symposium on Education Finance, National Conference of State Legislatures, San Antonio, Tex., February, 1992)
- \_\_\_\_\_. School Finance Litigation in America (A paper presented at the annual meeting of the National Organization on Legal Problems in Education, Phoenix, Ariz., November, 1992).
- \_\_\_\_\_ and David S. Honeyman. Adequacy and Excellence: Twin Dilemmas for the States. *Educational Considerations* 17 (1990): 27-30.
- \_\_\_\_\_, \_\_\_\_\_, and Verne Bryers. Equity in Indiana School Finance: A Decade of Local Levy Property Tax Restrictions. *Journal of Education Finance* 16, no. 1 (1990): 83-92.
- Wyckoff, James H. "The Intrastate Equality of Public Primary and Secondary Education Resources in the U.S." *Economics of Education Review* 11 (1992).

### Cases Cited (In Order of Citation)

#### Chapter 1

- Roberts v. City of Boston*, 149 Mass. 346, 21 N.E. 668.
- Cumming v. Board of Richmond County*, 175 U.S. 528, 20 S.Ct. 197, 44 L.Ed. 262.
- Brown v. Board of Education*, 347 U.S. 483, 74 S.Ct. 686, 98 L.Ed. 873 (1954).
- McInnis v. Shapiro*, 293 F.Supp. 327 (N.D. Ill. 1968), affirmed sub nom. *Ogilvie*, 394 U.S. 322, 89 S.Ct. 1197 (1969).
- Burrus v. Wilkerson*, 310 F.Supp. 572 (w.D. Va. 1969), affirmed 397 U.S. 44, 90 S.Ct. 812 (1970).

*Serrano v. Priest (Serrano I)*, 5 Cal.3d 584, 487 P.2d 1241 (1971).

*San Antonio School District v. Rodriguez*, 411 U.S. 93 S.Ct. 1278 (1973).

*Rodriguez v. San Antonio Independent School District*, 337 F.Supp. 280 (W.D. Tex.).

*Serrano v. Priest (Serrano II)*, 18 Cal.3d 728, 557 P.2d 929 (Cal. 1976).

## Chapter 2

*Plessy v. Ferguson*, 163 U.S. 537, 16 S.Ct. 1138 (1896), *overruled by Brown v. Bd. of Educ.*, 347 U.S. 483, 74 S.Ct. 686 (1954).

*Cummings v. Board of Richmond County*, 175 U.S. 528, 20 S.Ct. 197, 44 L.Ed. 262.

*Brown v. Board of Education*, 347 U.S. 483, 74 S.Ct. 686, 98 L.Ed. 873 (1954).

*McInnis v. Shapiro*, 293 F.Supp. 327 (N.D. Ill. 1968), affirmed *sub nom Ogilvie*, 394 U.S. 322, 89 S.Ct. 1197 (1969).

*Burrus v. Wilkerson*, 310 F.Supp. 572 (W.D. Va. 1969), affirmed 397 U.S. 44, 90 S.Ct. 812 (1970).

*Serrano v. Priest (Serrano I)*, 5 Cal.3d 584, 487 P.2d 1241 (1971).

*San Antonio School District v. Rodriguez*, 411 U.S. 93 S.Ct. 1278 (1973).

*Robinson v. Cahill (Robinson I)*, 62 N.J. 473, 303 A.2d 273 (1973).

*Sheff v. O'Neill*, 678 A.2d 1267

## Constitutional Article Cited

Fourteenth Amendment, U.S. Const. amend. XIV, § 1.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentations and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



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